THE NEW YORK STATE

Conservationist

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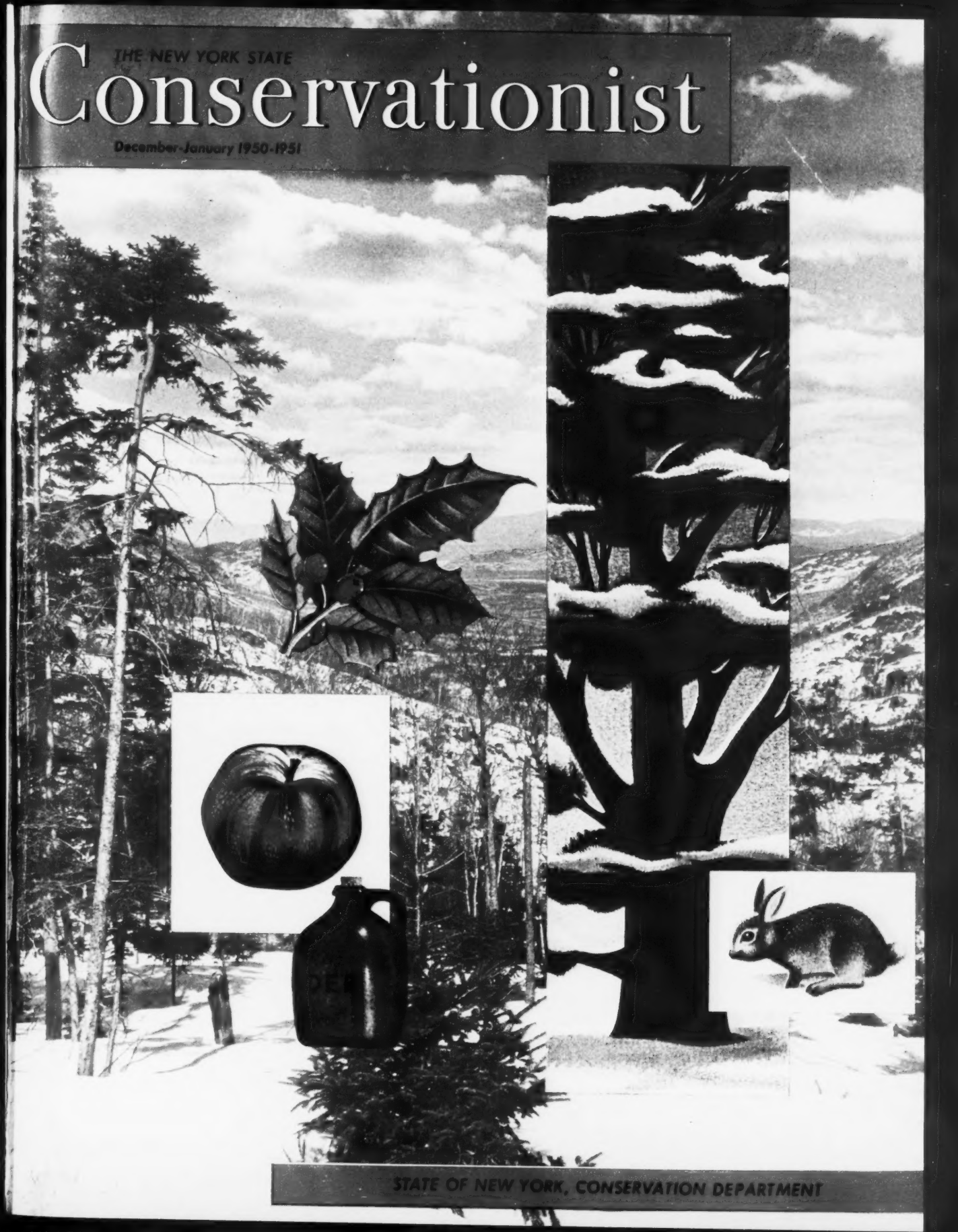

STATE OF NEW YORK, CONSERVATION DEPARTMENT

THE HUNTER'S MOON

Evidence is accumulating that we may soon need an open season on does in the Adirondacks. The reasons for this are explained elsewhere in this issue, and we are convinced by them. But in a deer hunter who has always thought of the sport in terms of being fooled by an old buck the prospect of a season on does, plus other prospects and reflections, have raised a question: What is to become of the Hunter's Moon?

The Hunter's Moon is the first full moon next after the Harvest Moon. We don't know who originally gave a moon to the hunter, or to the harvest, but we assume that whoever did the job assigned them with considerable care, and only the most deserving activities got one. Anyway, the harvest traditionally has its moon, and right after that the hunter has one.

Maybe it was wasteful to give the hunter a moon. According to a theory to which we subscribe, hunting is in one sense merely an extension of the harvest; game is a crop of the land, and hunting is the means of harvesting that crop. So one good Harvest Moon, if only it could last long enough, would cover the whole operation.

But we're reasonably sure that nothing so romantic as a moon would ever have been assigned to the hunter if hunting were nothing more than the mere methodical harvesting of a crop. And we also feel that if hunting ever becomes merely that, then it's time to give the Hunter's Moon to somebody else.

We doubt if things will ever reach that stage, mainly because the average hunter is out for the sport, for a chance at game, not for a kill. Also, he may be out because he likes to see yellow leaves floating on the water, or likes to lose himself in the sense of excitement and expectancy and rich fulfillment that seems to hang in the Fall air. We feel sure that it was because of his appreciation of this sort of thing that the hunter was long ago assigned a moon.

But will he keep it? In these inevitable days of crowded woods and fields, roadside hunting, planted game, managed game populations, regulations and violations, what will become of that appreciation of the finer rewards that mean hunting to so many?

It is difficult even to state these rewards, much more difficult to make a deliberate attempt to insure that modern hunting may still provide them. But we feel that the attempt must be made, and that not only hunting itself but the hunter's standing in his community will depend on its success. For the hunter, it will mean constant adjustment to changing conditions in the field; for agencies in charge of game and hunting, it will mean concentrating on the right objective.

As we see it, that objective is to keep a moon for the hunter. —*Editor*

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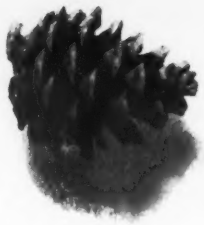
Pitch pine



Red pine

Jack pine

Norway spruce

White spruce

Red spruce

Black spruce

Hemlock

Tamarack

White cedar

Cones For Christmas

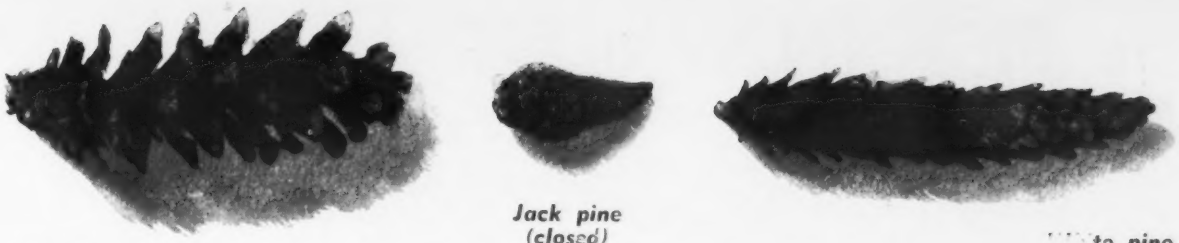
Seed factories in September Decorations in December

THE "pine" cones that you see in the stores and on doorway decorations at Christmas time (they may actually be spruce, larch, or hemlock) had already lived the best months of their lives before they were collected and shipped to market for the holiday season. Last summer, or perhaps the summer before, they were functioning, green things, engaged in the business of producing, storing and distributing tree seeds; but these woody, brown skeletons, picturesque though they are at the top of a wreath tied with red ribbon, will never make a tree again (as some who planted them with great expectations have found out the hard way). Their job was finished in September, when the scales opened and released the seeds, perhaps 40 or 50 in all, each with its tissue-thin, paddle-shaped "wing," by means of which the seed may travel two or three miles away from its mother tree before making a landing.

The cones of evergreen trees, from which they have acquired the family name of "conifers," are among the most fascinating contraptions of Nature. They originate in the spring of the year as delicate and often beautifully tinted flowers—lavender, purple, or crimson—of minute size, borne at the top of the tree or at the ends of the branches. At this stage, they are seldom seen by the layman, and nine out of ten people probably don't know they exist. Like other flowers, they require pollination in order to become fertile, and this is supplied by "male" flowers which are not cone-like, but are rather like catkins. Both sexes occur on the same tree, but cross-pollination is encouraged by the position of the male flowers on lower branches, so that the pollen as it drifts through the air is more likely to reach the cones on another tree. It's all done by the wind, so no bees need apply.

After liberating prodigious quantities of pollen the male flowers disintegrate, and that's the end of the story so far as they are concerned; but the cone flowers keep on growing, as the season progresses, into rugged, many-chambered structures within which the seeds develop—two under each of the cone scales. (You can see the imprint left by the seeds, if you will look at the inside of a scale on a cone that has opened.) The cones of most conifer species are full grown by the end of the first season; but pine cones take two years to mature, holding over the first year as "conelets" (in white pine, they're about an inch long) that can be spotted by the professionals, and serve to indicate the probable abundance of next year's cone crop. Old-time cone collectors call this the "set." Years of heavy cone crops, or "seed years" occur without any particular regularity, and nobody knows what makes them happen. With some species there is a crop of sorts every year or two; red pine, on the other hand, may go six or seven years between crops. This year, 1950, is one of the bumper seed years, not only for pines but for the other conifers as well, and is in fact one of the all-time seed-bearing years for nearly every species of tree and shrub in the entire Northeast.

By this time some readers will be



White pine

Jack pine (closed)

White pine (closed)

Photographs show cones of native New York conifers, and Norway spruce, which has become "native" by adoption. All are half natural size.

wondering why we haven't said anything about the balsam, or fir cone, and why it was omitted from the picture. The reason: balsam doesn't produce a "cone" in the accepted sense—that is, a durable, hard-scaled affair that persists after the seeds have gone. The scales of the balsam cone are shed, along with the seed, as the fruit matures, so the only place you are likely to see a balsam cone is on the tree, in July or August.

At the opposite extreme from balsam is the jack pine, native to Canada and northern New York, whose cones may remain on the tree for a dozen years or more and often stay tightly closed until subjected to the heat of a forest fire. (This accounts for the prevalence of jack pine on old burns.) Most conifers, however, like the white pine, start to drop their cones in the fall, right after seed-dispersal, and the bulk of them are on the ground by Thanksgiving, though a few will hang on through the winter.

CONES are tricky, opening and closing their scales in response to moisture, and in lesser degree, to temperature, as we have seen in the case of the jack pine. This appears to be a device for making sure that the seeds will be released for their "take-off" during a spell of dry weather. The action is mechanical, rather than physiological, as the cone keeps on doing it for years after it has ceased to function as part of a living tree. You can test this by taking a cone of any vintage and "dunking" it in water. Within 20 or 30 minutes, in most of our common species, the scales will start to close and will be just about completely closed up within an hour. They will stay like that for 12 hours or more, and open up again gradually as the cone dries out. Warm temperatures will speed the process.

In commercial-scale seed extracting operations such as we have at the State nurseries, the cones are partly opened by preliminary drying in an open-air shed, enclosed in screen wire to discourage mice and squirrels. Later they are placed in ovens or kilns, with batteries of sliding trays like those in a large bakery, and are run through on a time schedule under controlled temperature and humidity. When fully opened, the cones are put into a mechanical shaker that jars the seeds loose, and these are cleaned, winnowed and finally bottled in sealed glass carboys which are stored in an underground, electrically-cooled vault at about four degrees above the freezing point. We don't yet know how long seed will keep this way, but white and red pine still germinate well after ten years in the cooler.

WE mentioned that cones in the drying shed had to be protected from the squirrels. As a matter of fact, the squirrels make pine seeds a favored part of their diet, and thereby hangs a tale. Here in the Northeast, the squirrels seem to prefer the white pine (probably because of its larger seeds and thinner scales) and leave the red pine alone. This is an important fact in the economics of tree-growing. Cones for tree production are collected in late August or early September, just before they would normally open. In the case of white pine, they can usually be collected from under the trees where the squirrels have cut them down, while the cone-pickers (or "burr-pickers" as they are called in the North Country), have to climb the trees for the red pine. Take it all in all, the squirrels probably save the Conservation Department and other cone-collecting agencies around three dollars a bushel, which in 1947, when we bought 5,000 bushels of white pine, amounted to a nice round sum of $15,000. Lest some lover of wild creatures think we're exploiting these little rodents, let it be said that they always cut down many times more cones than they will ever eat, seeming to think that each cone crop is going to be the last.

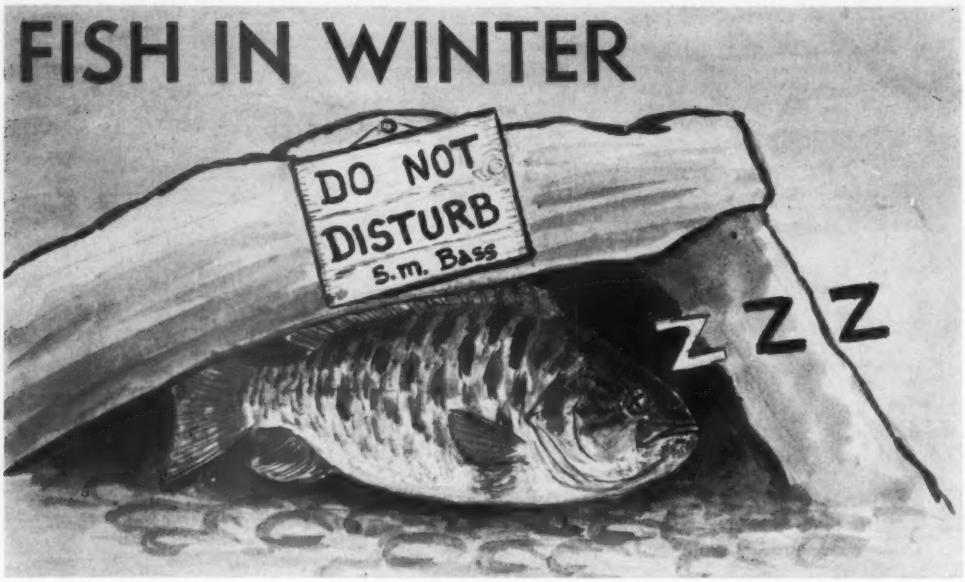
Cones make first-class kindling, as those who live near seed extraction plants are well aware. Out in the California Sierras, a few armfuls of sugar pine cones a foot long (sometimes 20 inches or more) make a good campfire for the evening. Incidentally, big trees don't always have big cones. The scrubby digger pine of the California foothills, for instance, has a cone in the dimensions and shape of a fair-sized hornets' nest, while those of the giant Sequoia are not more than two or three inches long and those of the towering redwood are less than half this size.

Cones for the Christmas market are an item of commerce today, and are shipped from one end of the country to the other. The ones on display at the dime stores say, in Albany or Rochester, may represent any one of the northeastern conifers, loblolly or longleaf pine from the South, sugar pine from California, or Norway spruce from planted trees. Pitch pine cones, which are of medium size and rather symmetrical and distinctive in shape, are among the favorites in this part of the country and are plentiful in the section around Albany and Schenectady, and on Long Island. Red spruce from the Adirondacks and New England are among the smaller-sized cones which are popular, and the smallest in general use are those of the hemlock, which are usually mixed in with the sprays of foliage and make a particularly attractive wreath.

CONES for Christmas, indeed! Without them the holiday would lose much of its color, and Christmas decorations much of their charm. We may well be grateful for these fruits of the conifer family, which keep on serving a purpose long after they have finished the job Nature intended them to do. Whether pointing up a wreath, or hanging solitary in door or window, or used to kindle the Yule fires, cones will always be one of the best features of this Best of Seasons.

—E. W. LITTLEFIELD,
Superintendent,
Bureau of Forest Management

FISH IN WINTER



WHILE winter snows help advertise the comings and goings of active terrestrial fauna, an ice cover on the local pond seems to heighten the enigma surrounding its finned inhabitants. As a matter of fact, relatively little detailed knowledge has been accumulated concerning this frigid phase of the life history of even the commonest fresh-water species. This is understandable—in view of the fact that most aquatic biologists retire to a steamheated office or laboratory once the season of ice and blizzards rolls around.

Some fish act like aquatic biologists. For instance, you would have just about the same chance as the proverbial snowball in July of ever catching a smallmouth in New York from December through March. It appears that this species suspends all activity during the coldest months and becomes dormant, generally seeking out some crack or crevice among the rocks. Apparently, the supply of fat accumulated during the summer and fall months is sufficient to tide them over this period of self-imposed starvation. Smallmouth bass captured in the spring have been observed with worn areas on their bodies, the result of abrasion caused by the hard walls of their wintry retreat.

Before continuing with any discussion of the winter habits of individual species, it is desirable to highlight some of the environmental and physiological influences which govern the winter behavior of fishes.

We are all aware that substances contract on cooling. Water, however, exhibits an irregular phenomenon; it only contracts down to 39.2° Fahrenheit, (the point of maximum density). Below that, as it approaches 32° (the freezing temperature) it becomes less dense and expands. This explains why lakes freeze over at the surface rather than on the bottom—a really fortunate event for all aquatic life. Once the ice cover has been formed, the water temperature ceases to bear any relationship to that of the surrounding air. Thus, neglecting the local influences of springs and tributaries, the basic temperature profiles of all lakes with ice covers are similar; the water being 32° at the top and 39.2° at the bottom. This is as true of Arctic lakes, which are continually icebound, as it is of ponds located in a latitude where freezing over is a rare event. Thus, barring any complete thaws, lake and pond fish inhabit a winter environment which is amazingly stable in temperature.

A fish is a poikilothermal animal—one whose blood follows the temperature of its surrounding medium. What, then, determines why a particular species of fish is generally active during the coldest months while another species is lethargic? The answer lies in rate of metabolism. Each species of fish is so constituted that its physiological machinery functions best at a certain optimum temperature, just as chemical reactions progress most efficiently at a stated temperature. For example, the largemouth bass thrives at about 80° F. while lake trout prefer to operate at a temperature in the neighborhood of 50° F. The result is that the laker is much less indisposed to the water temperatures which prevail in mid-winter. Of course, fish can endure a range of temperatures extending both above and below their optimum. In winter it is chiefly their physiological tolerance to the then prevailing temperatures which determines whether or not they become completely dormant, merely sluggish, or remain quite active. Suffice it to say that even the fishes whose optimum temperature requirement is low grow more slowly in winter, as indicated by the annuli, or winter marks, on their scales.

Do fish follow the same diet in winter as in summer? Do they consume as much food? From the preceding discussion on metabolism, it seems reasonable that their demands for nourishment should slacken as the water temperature drops below their optimum. This tendency is seen to its best advantage in the smallmouth, in which case there is complete abstinence. A cold water tolerant form, such as the lake trout, reduces his ration less noticeably. But cold water temperatures slow the digestive processes, and while forage may be available, the fish's appetite is not commensurate with that maintained in waters only a few degrees warmer.

Predaceous fishes continue to feed upon the available forage species and their smaller brethren. The advent of winter, however, brings about enforced changes in the menu of certain species and age groups. The minute plants and animals which constitute the "plankton" form the living basis for the food cycle of fishes. As the aquatic animal world is either directly or indirectly dependent upon green plants for sustenance, its destiny is closely related to the algal population. The algae, as in

the case of higher plants, are reliant upon solar energy and are naturally handicapped by an ice cover. A blanket of snow upon the ice obstructs the transmission of sunlight and halts the vital process of photosynthesis. Thus, their vegetative growth ceases and they must resort to various strategems to survive the period of darkness.

Many of the tiny crustaceans avoid the lean months by producing resting stages, such as the winter eggs of the common water flea which develop into new generations when conditions again become suitable. As a result, regular plankton feeding fishes and active juveniles must switch their diet to the forms which are undeterred by winter. Insect feeders must in the main shift their attentions to immature stages.

FISHES residing in streams are vulnerable to certain conditions and dangers which do not affect the more fortunate lake and pond dwellers. Ice makes the stream inhabitants' life a hazardous affair. Sudden thaws can create ice jams which, when finally dislodged, attack the banks and bottom with battering ram force. Impelled by the current these destructive fragments scrape away the gardens of diatoms coating the stones and thus remove the herbivorous aquatic insects' principal source of food.

Pond inhabiting fishes are not entirely immune to winter accidents. While cold water has the property of containing greater quantities of dissolved oxygen than warmer water, it is still possible for fishes to suffocate in winter. Fertile shallow ponds, containing a great deal of organic matter, rapidly utilize this oxygen in the process of decay. Ordinarily the algae and winter hardy rooted aquatic plants replenish the supply. A snow and ice cover prevents this function and thus results in a "winterkill."

The winter habits of many species vary considerably according to their individual habitat. (Bullheads, for instance, while generally considered a sluggish species in winter, demonstrate considerable irregularity; netting has revealed that bullheads move about actively under the ice in Oneida and it is reported that they contribute substantially to the winter catch in Chautauqua.) But three broad groupings are suggested: the regularly active species; those which can be termed irregular in their winter habits; and finally the sluggish or dormant forms. We will limit this discussion to the more common food and game species.

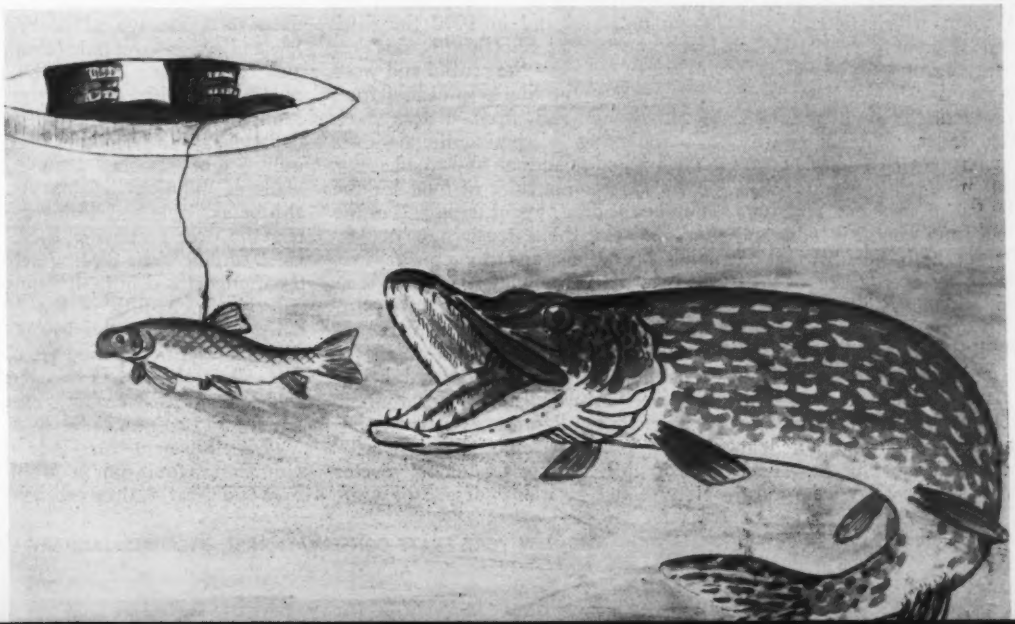
By virtue of the fact that spawning entails considerable activity it seems logical that the fishes which perform their reproductive obligations during the winter months should fall into our first category. As a matter of fact only a few species can be considered true winter spawners—as opposed to some fall and spring spawners which often either delay or speed up their breeding to coincide with the winter months. Fishes included in the former class are certain species of "chubs" (closely related to the whitefish and ciscoes) inhabiting the great lakes, the burbot, (alias lawyer or ling) and the ever popular smelt. An intensive ice fishery for the latter species flourishes on Lake Champlain where the smelt are captured enroute to the breeding grounds during February and March.

Two families of winter active fishes furnish the bulk of our ice fishing sport, as their predaceous members eagerly respond to bait. The perch family contributes the toothsome pike-perch (alias walleyed pike) and his close relatives the sauger and blue pike. However, it is probably the common and widely distributed yellow perch which sustains the brunt of winter fishing pressure. The pike family runs a close second by providing pickerel and northern pike. While the musky belongs to this group and is definitely an active winter forager, he is not legally vulnerable—being protected by a closed season. Conservation laws also prohibit the winter exploitation of our choicest game fishes, the members of the salmon family, which includes all our trout, charrs and salmon. In lakes, ponds and spring streams, these species move about and feed actively throughout the winter. Those residing in streams, lacking the warming influence of springs, feed but little, remaining in the quiet backwaters and pools. Whitefish and ciscoes (lake herring) are regularly active, plankton-feeding species which really test the ice fisherman's skill and patience.

The sunfish family, which also includes the popular black basses, runs the gamut from complete inactivity to a moderate display of winter vigor. The former condition is illustrated by the smallmouth. Crappies (calico bass) and bluegills exemplify the latter state. Rock bass, largemouths and the other sunfishes rarely enter the winter catch and for all practical purposes can be considered as sluggish species.

While this brief outline of winter fish activity may appear fragmentary, it must be remembered that our knowledge of the subject is quite limited and the field is wide open for future investigation. So put on your ear muffs, swing that ice spud, and observe, as did Thoreau, "the quiet parlor of the fishes."

—MARTIN H. PFEIFFER,
Aquatic Biologist



What's happening to our deer range?

THE old hunter sat musing by the fire. His thoughts turned to his younger days. He had been an ardent deer hunter and New York had afforded good hunting. The deer population had been estimated at upwards of half a million and the animals were plentiful in almost every county of the State. That was years ago—about 1950. It was different now. True, there still were deer and open seasons for hunting them. In fact, in agricultural sections complaints of deer damage to crops and orchards were often heard. But, over the range where hunting had been best in the old days, deer were scarce. Unless a fellow got his chief enjoyment from just tramping the hills, it was hardly worth-while to go deer hunting even though the number of hunters had fallen off sharply. The experts said the carrying capacity of the range had been reduced by the overbrowsing of too many deer. He could see it now, although at the time the experts had issued their warnings he had been one of those who had strongly opposed reducing the number of deer. Why were such matters so often subject to the tragedy of "too little and too late?"

We don't anticipate ever actually having to report such a deer situation in New York. Nevertheless, it could happen—unless the range is maintained in good shape. The extent and quality of the range constitute the ultimate foundation upon which deer populations depend. Therefore, a knowledge of what is currently taking place is prerequisite to planning good management.

Before considering present conditions, however, the reader should be familiar with certain changes that have already occurred. In primeval times the character of the range in New York was quite different from what it is today and was reflected in both the distribution and abundance of deer. Over a great deal of the State, range quality was poor. The dense northern forest of the Adirondacks had little feed, especially in winter, and supported few deer. Southward, a large proportion of the land was covered by even-aged mature timber whose closed crown resulted in a general deficiency of forage. Here, too, deer were scarce. They were most numerous in the valleys and lowlands where stream margins, prairie-like areas and other openings produced the mixed cover and abundant undergrowth in which they thrive best. The same land which has since proven most productive agriculturally was originally the primary deer range of the State. Everywhere the deer were harassed and preyed upon by wolves and panthers. This together with the more local effects of Indian hunting kept their numbers in check.

As settlement progressed, the scattered clearings created additional excellent habitat and deer increased accordingly. So also did lumbering operations. The latter, together with elimination of the wolf and panther, made it possible for deer to become established in the Adirondacks and other wilderness sections. As time went on, however, the expansion of land clearing, coupled with few laws restricting hunting and less enforcement, virtually eliminated deer throughout the State outside the Adirondack forest during the latter part of the last century—and there, although more numerous than a century earlier, they were not plentiful. Thus, there had come about the paradoxical situation of the primary deer population in the State occupying the region which had originally not been deer range at all.

About 1900, deer began to increase and expand their range. Market hunting and other over-liberal practices had been outlawed and in 1912 the Buck Law was enacted. Shortly after this deer began to reoccupy the central and western parts of the State, spreading from Pennsylvania and from eastern New York. During this period the slashings left by the lumbermen and woodcutters afforded an abundance of food for the number of deer present, although in the Adirondacks the extensiveness of logging operations and subsequent fires had restricted the wintering grounds in some localities. In the southern part of the State, too, a large acreage of submarginal land previously cleared for agriculture was abandoned and began to revert to woodland. The resultant overgrown brushy areas provided excellent deer habitat, especially since winters in this territory are seldom severe. Here, aided by a low degree of year-around hunting, deer increased by leaps and bounds.

During the past decade the deer population has reached a high level throughout the State. It has become evident, however, that over much of this territory the range cannot support greater numbers than now exist and that, in some localities, present abundance is excessive. This will be hard for many hunters who have gone home empty-handed to appreciate. Let's look at what is happening:

ASIDE from space, the essential elements of deer range are food and shelter. Both are supplied mainly by vegetation. Moreover, woody vegetation is the primary factor because, while deer do a lot of grazing during the warm months, they are almost wholly browsers in winter, which is the critical season. Furthermore, deer are unique among the State's wildlife since, because of their size and high degree of gregariousness, they can damage their own range by overbrowsing the food supply. The available winter forage is the primary factor controlling the ability of the range to support deer, not only in New York but wherever the species occurs.

In the central Adirondacks good wintering habitat is more restricted than over the deer range of other sections of the State. Because low temperatures and deep snow are typical of this region, lowland evergreen stands (usually spruce and balsam swamps) are the essential nuclei of suitable wintering areas. As a result of lumbering, fire and man's occupation of the land, as well as the influence of topography, such areas are scattered and often deficient. Food must also be available and during severe winters the deer occupying these "yards" must confine their feeding activities to the immediate vicinity. In consequence, only about one-fifth of the total deer range must support the deer population during the critical period from January to April in all winters except the very mildest such as have been experienced in the last two years.

That is where the shoe pinches. Summer range is not a problem and there is a great deal of excellent winter

A good combination of food and shelter

Effect of overbrowsing on red maple

Overbrowsing in white cedar

browse too far from the yards to be available when it is needed most. Conversely, the browse which is accessible has been used, and often overused, year after year. In many situations the deer not only eat the annual growth but also the trees and shrubs that produce it. Where heavy overbrowsing occurs many browse plants are killed completely and seedlings meet the same fate. Continued overbrowsing results in a depleted range and a lowered carrying capacity for deer. It also results in a low rate of reproduction among the deer, and in chronic winter mortality.

In the central Adirondacks overbrowsing is already prevalent in a large proportion of the yards and is in its early stages in many others. Although recent lumbering has created new supplies of browse in some places, much of it is not accessible to deer during the critical season. In other situations where it might be used, the associated evergreen shelter has been largely destroyed because of the low stumpage sizes now accepted for pulp. Many older slashings are growing beyond the reach of deer. On the other hand, new winter shelter units are developing here and there. But, in general, the range in this section is not improving or even holding its own with respect to supporting the deer population which has been, and still is, increasing. Furthermore, several unusually mild winters have permitted the population to build up to a level considerably above what the winter range can support in an average winter.

Throughout the Adirondack region outside its central section, overbrowsing is seldom a problem. Deer abundance is held in check, chiefly by year-around shooting. The range is more than adequate for its present deer population, although it is constantly changing as existing undergrowth develops into timber and slashings create new supplies in

A pole stand with almost no undergrowth to furnish deer feed

the various stages of forest succession.

Conditions in a number of localities in the central Catskills are similar to those of the central Adirondacks.

Elsewhere throughout the southern part of the State, lack of lowland areas of evergreen cover is not the limiting factor that it is in the Adirondacks because winters are less severe. Deep snow seldom persists for long and browse can be used by deer almost anywhere it occurs. Nevertheless, the supply is not inexhaustible and in many areas virtually all the annual growth is being consumed by the deer present. In general, serious overbrowsing has been avoided by means of the open seasons for antlerless deer which have been held since 1941. Winter losses from malnutrition are negligible and the reproductive rate is high.

At the same time, the deer population over most of this territory has reached a level where, as an average, there is little "freeboard" left between the present rate of browse consumption and what the range can sustain without deteriorating. This applies not only to the central and western counties of the State but to much of the outlying Catskill section and the counties east of the Hudson as well. In area after area, field observations show that deer browsing is noticeably thinning the undergrowth present and to a large extent preventing timber reproduction. It has become clear that the abundance of deer in this territory must be held in check not only because of their conflict with agriculture but also to prevent their doing irreparable damage to their woodland range with respect to both its browse and timber production.

Another aspect of change in range conditions pertains especially to the tracts of submarginal farmland which have been reverting to woodland since their abandonment over the past quarter century. As these old fields became overgrown with brush they constituted the finest sort of deer habitat and contributed substantially to the rapid expansion and increase of the deer population. But trees grow. A large proportion of these stands either has reached the pole stage or will in the near future. This has two effects, both of which drastically reduce the quality of the range for deer. First, such saplings grow almost entirely to tops so that the browse produced is out of the reach of deer. Second, the closed canopy shades out undergrowth. The result is like suddenly removing the grocery store from a community. Where this happens the carrying capacity of the range for deer is lessened accordingly. And such pole stands must continue to grow for some years before they will be attractive to the lumberman and good browse can again be created.

That heavy browsing by deer can affect timber reproduction has been mentioned. In addition to a variety of shrubs, the preferred foods of deer include, perhaps unfortunately, most of the valuable timber species of New York State, although spruce and beech are exceptions. This is especially true with respect to seedlings. When deer pressure on the browse supply becomes heavy, seedlings of such species are virtually eliminated and even more advanced plants are stunted or killed. A few, notably the red maple, will branch out and provide deer browse for a time, but the principal result is an altered composition of the understory in which species inferior both as browse and as timber predominate. This is happening in many sections of the State's deer range.

This potential change in forest composition has a broader significance than its relation to the deer carrying capacity of the range. Wood is a vital element in the economy of both State and nation. The last war could have been fought without deer, but hardly without wood. Another war would be the same. Deer management and forestry must be integrated to insure perpetuation of timber resources.

So today, after some 300 years of settlement, there is more good deer range in New York and many more deer than when the white man first came, although the distribution of both is different. Overbrowsing has become chronic in many localities, not only in the central Adirondacks, but throughout the southern part of the State. We have the opportunity, however, of achieving a healthy balance if the desire for more bucks can be tempered with the realization that range limitations do exist and that deer abundance over much of the State has reached that limit.

Where deer abundance has reached the maximum the range should support, the Buck Law has outlived its usefulness. Venison must be looked upon as deer and proper management must include periodic herd reduction through taking antlerless deer. The wisdom of this course has been demonstrated in the Southern Tier and other western counties, where several such open seasons have been held since 1941, as well as by the experience of other states. That conditions elsewhere in southern New York and in much of the central Adirondacks, although less uniform, also warrant similar action must be recognized in spite of the long-standing tradition in these sections of legally shooting bucks only.

Only by reducing the herd to where it does not quite consume the annual browse production can the range be kept in good condition—and keeping the range in good condition is the only way to keep the deer herd in good condition.

—Robert W. Darrow,
Supervisor of Game Research

NOTE: Pittman-Robertson game research studies in New York have revealed that the reproductive rate of deer is a good index of range conditions. The data needed can be obtained by examining the reproductive organs of female deer. The open season for antlerless deer this fall afforded an excellent opportunity to obtain such information for the territory involved, and through checking stations manned by Department personnel, more than 225 specimens were collected for examination. Analysis of this material will shed further light on what is happening to the deer range in that part of the State.

SHOULD WE GET TOUGHER?

THE laws of this State which regulate the taking of fish and game have two fundamental purposes: (1) to protect and maintain, year after year, an adequate supply of fish and game; (2) to insure that in the taking of fish and game, each sportsman shall have a fair and equal opportunity.

That part of the Conservation Law which is designed to promote these two purposes is necessarily detailed and complex. To the sportsmen who don't appreciate all the possible situations it is supposed to cover (and that includes a lot of sportsmen), the laws frequently seem trivial and restrictive to the point of being merely a nuisance—"something those bureaucrats in the Conservation Department dreamed up to spoil our fun." To the person who feels this way about some section or paragraph of the law, we are prepared to show how violations of this section or paragraph operate against one or both of the fundamental purposes listed above.

Violations, however, seem to us to fall into two categories. First, there are what might be called minor violations, of a kind which usually arise from an unpremeditated act or from neglect to perform a duty imposed by the law. Violations of this nature must, of course, carry a penalty; otherwise the law would be worthless. But we don't feel that the penalty should be too severe, or that the Department or any other agency should attempt to preempt the authority of local Justices and Courts by stating just what that penalty should be.

Second, there are what might be called major violations. These involve a deliberate, premeditated attempt to take more game than the law allows, or to take it illegally with respect to season or method, or both. It has been shown repeatedly that such violations are a definite threat to the maintenance of an adequate supply of game, and it's perfectly obvious that the people who commit these violations are deliberately taking an unfair advantage over law-abiding citizens.

In general, the philosophy behind what we call major violations might be summed up this way: "I know the law, but to Hell with it; I'm going to get mine now, and to Hell with the other fellow."

It is in dealing with this type of philosophy, and the acts that result from it, that we feel we ought to get tougher.

Apparently the only language which this type of violator understands is the threat of a stiff fine or prison sentence. It has been suggested, therefore, that one way of dealing with the situation would be to establish a blanket increase in penalties all along the line; in other words, that we should get tougher *generally*. We doubt if this would produce the desired effect, and we suspect that any such arbitrary procedure might result in a miscarriage of justice in individual cases. Instead, we think we should get tougher *specifically*.

As a case in point, let's consider the deer-jacking law. This law, passed by the Legislature two years ago, made deer-jacking an indictable misdemeanor and provided for both a stiff fine and a prison sentence. The law was aimed at curbing a specific type of violation—deer-jacking—and it was effective; a couple of cases were tried and won under it, prison sentences were handed out, and deer-jacking has been reduced at least 75 per cent in New York. We still have people that blind a deer with a light and then shoot it, but definitely not in the numbers we used to have.

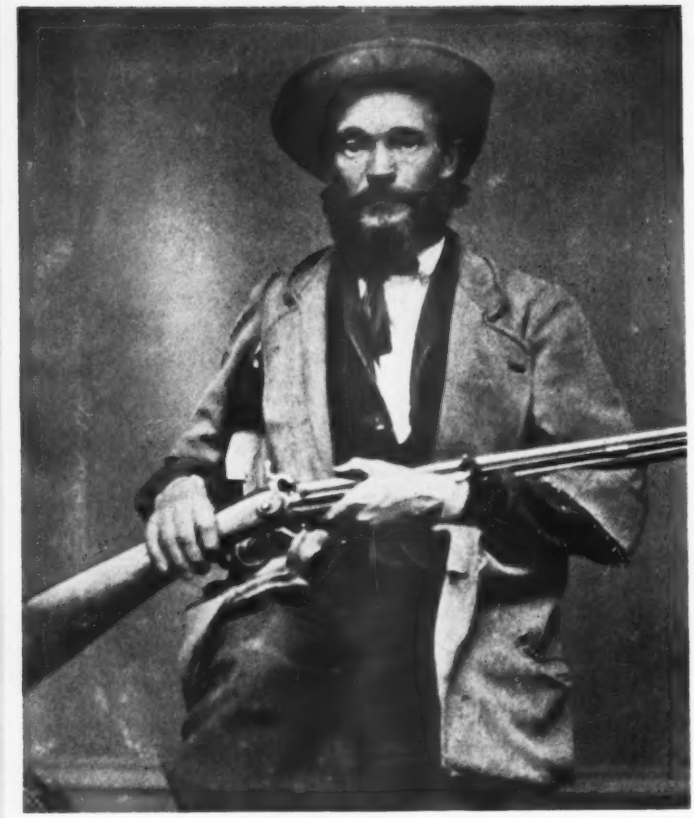
The success of this law seems to us to be a good argument for more of same. Or rather, a violation-by-violation extension of same. Some Game Protectors, for example, feel that the effectiveness of the jacking law should not be overestimated; many erstwhile jackers have simply become dawn and dusk shooters, thus escaping possible indictment under the jacking law, but doing just as much damage as ever. All right, let's crack down on these violators next.

We refer to our deer laws for two reasons: (1) as an example of what might be, and has been done; and (2), because the Department is now preparing legislation designed to bring penalties for other deer violations more into line with those already established for jacking. The jacker has been hit hard; yet the man who kills a deer out of season *in broad daylight* may receive only a light fine. The Department will do its part in attempting to help correct this situation at the forthcoming session of the Legislature.

BUT we feel that violations other than those involving deer are susceptible to the same sort of treatment: first isolate a particular type of violation, then crack down on it. In addition to deer violators, the Department has singled out for attention the pre-season hunter—the man who kills pheasants, ducks or other game before the opening of the season. It's apparent that there is no excuse for this type of violation, and the Department will have ready for consideration by this year's Legislature proposals aimed at making penalties for such violations much more severe.

It will be seen that our own answer to our own question—Should we get tougher?—is Yes. But let's do it step by step, and do it right.

—P. W. FOSBURGH



NESSMUK

He changed a lot of ideas about living in the woods

by DAN BRENAN

George Washington Sears ("Nessmuk" to us), outdoorsman, hunter, angler, canoeist, poet, philosopher, writer supreme on woodcraft lore and erstwhile bellwether of the "go-light" brotherhood of more than half a century ago, was born at Oxford Plains, Mass., on Dec. 2, 1821, and lived the greater part of his life in Wellsboro, Pa., where he practiced his trade of shoemaker.

Of his early years we have scant knowledge; although he tells us in the autobiographical preface to his volume of poems, *Forest Runes*, that when he was a small boy he came under the spell of a young Indian named Nessmuk (wood duck, or wood drake, in the Narragansett tongue, we are told), who taught him the rudiments of woodcraft; hence the pen name of later years.

We have no space for many of the interesting episodes and accomplishments of his eventful life; the two trips to Brazil; the years spent in Florida; the hunting-trapping trip to Michigan in the 1840's; his famous fly-dope formula (3 ozs. pine tar, 2 of castor oil, 1 of pennyroyal. It proves effective "after you have established a good glaze," he says. "And don't fool with soap and towel where insects are plenty."); his brief experience as a salt-water sailor "before the mast"; the night he set up camp in Central Park, N. Y., (a cop jailed him); his two books, *Woodcraft*, the classic among manuals of the outdoors, and *Forest Runes*; his 90-odd letters to *Forest & Stream* during the '80's; his miniature hatchet, described by Mr. Ehrhardt in the June-July 1950 issue; and, most important of all, his lifelong devotion to wildlife preservation.

Our interest, as New York Staters, naturally centers on the three summers he spent in the Adirondacks, camping and cruising in his featherweight canoes. The story is told in part in *Woodcraft* and in full detail in the pages of *Forest & Stream*. He evidently had read Verplanck Colvin's reports of his Adirondack Surveys and the vivid description of this fabulous Land Of The Sky-Blue Waters fired Nessmuk with a determination to explore its "300 new lakes and ponds never before mapped."

His first need was an ultra-light canoe, one that he himself could carry over the portages, together with his duffel, (he boiled it down, canoe and all, to *26 pounds*, he tells us) in one trip. His choice of maker was a fortunate one. J. H. Rushton of Canton, N. Y., a master craftsman of the first rank.

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was painted green. He used it in the summer of 1880 only; sold it later to a Fulton Chain guide, Fred Perrie. The second was named the "Susan Nipper" (see Dickens' *Dombey & Son*). She was 10½ feet long, 28 inch beam, weighed 16 pounds and was finished in oil and shellac. She was used in the summer of 1881 only. Ill health prevented Nessmuk from visiting the Adirondacks in 1882, but in 1883 he was back again, this time with the famous "Sairy Gamp" (see Dickens' *Martin Chuzzlewit*). She was 9 feet long, 26 inch beam, weighed 10½ pounds and was finished in oil and shellac. If these dimensions and weights leave us open-mouthed with amazement, we may explain a large part of the enigma by saying that Nessmuk was only 5 feet 3 inches tall and weighed 105 pounds in cruising trim. He believed that one pound of cedar could be made to float 10 pounds of weight, given skilled design and workmanship. Rushton was a master of both.

Nessmuk went into the Adirondacks by rail to Boonville, then to Old Forge by wagon, water and/or trail, a tough journey any way one planned it in those days. He made the Forge House, at Old Forge, his mail headquarters and set up permanent camp at the narrows between Third and Fourth lakes, where he could keep a sharp eye on the passing scene. The Forge House proved a happy rendezvous, for there he met the many guides who made it their headquarters while waiting for engagements. The rare privilege of hobnobbing with these bona fide professional woodsmen was one not to be lightly thrust aside; and there is ample reason to suspect that this allurement interfered with his avowed objective, that of exploring the innermost fastnesses of the Northern Wilderness. In this first season he got as far away from the Forge House as Raquette Lake, with a side trip to Blue Mountain Lake; that's all.

HE did better the next season, 1881, venturing as far as Long Lake, where he stayed with the Mitchell Sabattis family. There he met the famous John Plumley, favorite guide of W. H. H. ("Adirondack") Murray, who immortalized "Honest John" in his *Adventures In The Wilderness* (1869). But Nessmuk was ill, very ill. He could go no farther, although he had sincerely planned to go through to Paul Smith's on the Lower St. Regis. He gave away most of his camping duffel and started for home. "I was getting weak—demoralized . . . ," he wrote. "I paddled up Long Lake, took the carries slowly and wearily. . . . I had planned a cruise of 1,000 miles, the log showed 206. I was listless, easily tired and slow to rest. It was time to go home. I paddled down to the Forge House, hung the canoe up in Barrett's boathouse and the cruise of the Nipper was ended."

The truth is, whether he realized it or not (and there is strong evidence that he *did* realize it), that the first serious ravages of "consumption" were beginning to take their toll. He went home and began a long period of recuperation, lasting until the summer of 1883, in fact.

1883 was his year of triumph. Rushton finished the *Sairy Gamp* and shipped it to Nessmuk with grave misgivings. "Use it first in shoal water," he cautioned. "I don't guarantee anything for strength. It may go to pieces like an egg shell." Nessmuk replied, with serene confidence: "Mr. Rushton builds better than he knows."

EARLY in August he took off for the St. Regis country. Word of his coming preceded him and everybody went forth to welcome him. He was entertained at hotels, camps and various resorts along the route. The roster reads like a Stoddard Adirondack Directory. He visited Alvah Dunning's camp on the island in Eighth Lake; Bennett's, Whitney's and Kenwell's on Raquette Lake; Fletcher's on Forked Lake; Dave Helm's on Long Lake; Senator Platt's private camp on Long Lake; "Mother" Johnson's at the Raquette Falls carry; Dukett's and Corey's at the Indian Carry; Bartlett's and the Wawbeek on the Upper Saranac, and at last reached his goal, Paul Smith's.

On the return journey he took the Sweeny Carry to the Raquette River; then came Tupper Lake, Little Tupper, a short carry to Stony Pond, then Slim ponds and a carry to Clear Pond (Lake Eaton) and another carry to Long Lake, thence up the Raquette River, Forked and Raquette lakes, Brown's Tract Inlet and Pond and lastly the Fulton Chain.

Nessmuk was in no hurry. He wanted to be alone with his thoughts. It was his last trip through the Chain and he knew it. He visited his old campsite in the narrows, a scene of many dear memories, " . . . and when the moon rose, orange-red and large and full, I paddled very quietly, and a little sadly, over the Third, by the Eagle's Nest, across the Second, by the Stickney camp and over the First, and so down by the Indian Rock and down the channel until I made the lights of the Forge House. I landed at the boathouse, tied in, and at 8:30 o'clock the *Sairy* was resting by the maple tree where my canoes have so often found a safe resting place." The cruise of the *Sairy Gamp* was finished.

The glorious summer had become a memory. He wrote *Forest & Stream* with wistful pathos, " . . . my outing is over for this year. I have brought the *Sairy* home without a check in her frail siding. She sits lightly on a shelf, where

> *"I turn and raise the load,*
> *With weary shoulders bending;*
> *And take the old, well-beaten road,*
> *That leads—unto the ending."*

Nessmuk's premonition that he had made his last Adirondack trip proved true. His health grew more and more uncertain. He accepted the invitation of a friend to visit him in Florida and there he spent many happy months. In the spring of 1890 he was too feeble to leave the house and on May 1st he quietly passed away. He lies in the village cemetery at Wellsboro, where a memorial monument, the tribute of a large group of friends and admirers, marks his last resting place.

The *Sairy Gamp*? Nessmuk sent it back to Rushton after the 1883 cruise. Rushton sent it to the *Forest & Stream* offices in New York for exhibition. It was shown at an exposition at New Orleans and also at the Columbian Exposition in Chicago in 1893; perhaps elsewhere. During the First World War it was loaned to W. Starling Burgess, a well known yacht designer, to be used as a model for lifeboats for naval airplanes. It is now in the National Museum (Smithsonian Institution) at Washington.

NESSMUK'S spectacular cruises in the Adirondacks in Rushton's double-paddle "egg shells" are nothing more than theatrical high lights in the varied career of this extraordinary man. In the last accounting he will be remembered as one of our pioneer conservationists. In the decade 1880-1890, in which *Forest & Stream* published more than ninety of his letters, he was recognized as America's Number One out-of-doors writer and prior to that period he had been a welcome contributor to Porter's *Spirit Of The Times*, the *Atlantic*, *Aldine*, *Lippincott's* and perhaps others.

At the peak of his popularity no other writer of his time contributed more to the preservation of our wildlife resources, then being wantonly dissipated on all sides; and his tireless work was undoubtedly one of the vital factors in the eventual adoption of the famous Article 7, Section 7 (now Article 14, Section 1) of our State Constitution, safeguarding to our children and our children's children for all time the "wild forest lands" of our priceless Adirondack heritage.

I welcome this opportunity to thank Mrs. Mazie Sears Bodine of Wellsboro, Pa., a niece of Nessmuk, for the greater part of the biographical data relating to Nessmuk's life; and also Mr. E. R. Shumway of Wellsboro, for the photographs.—D. B.

Adirondack coyote on typical range

The Latest on Coyotes

THE northeastern coyote (*canis latrans thamnos*) has been prospecting the wilder areas of New York State for over a decade with but one objective—to see if it is a suitable place for him and his packmates to settle. After several years of rather intensive investigation, we feel that the coyote is quite satisfied with the Adirondack mountains and adjacent areas and is making a determined effort to establish permanent residence.

Until the last three or four years, the animals have not been present in sufficient numbers to cause more than local interest. But during 1948 many contacts were made both with individuals and with groups of these animals by sportsmen and residents of the Adirondacks. Several counties established bounties. During early 1949 the Department launched an investigation to secure valid data on the animals, their habits, range, populations and methods that could be used for control. The findings of this investigation during the first year were discussed in an article entitled "New York's Coyote Control Problem" in the December 1949-January 1950 issue of THE CONSERVATIONIST. The investigation and experimental control techniques were continued in 1950 and a large amount of valuable data was secured.

There is little doubt that the coyote is here to stay and, as in Michigan, Missouri, Wisconsin and provinces of Canada where the problem has existed for a long time, we in New York must cope with the animal. Fortunately, the problem is still on a comparatively small scale and in addition, we have the experiences of other states to draw upon in establishing control programs.

To review briefly the characteristics of the coyote of the Adirondacks, we can say that most of the animals in the more remote sections are as close to pure-blooded coyotes as we could ever expect. On the fringe areas, hybridization has a tendency to bring forth animals that may vary considerably one from the other. The average animal is dun colored, with a fur of coarse texture, and weighs from 35 to 50 pounds at maturity. The female is usually five to ten pounds lighter than the male. The family group averages about five in number, though in one exceptional case a group of 12 was found. The families start breaking up in the late fall, pairing off in January, and are well scattered by mid-winter.

The favored habitat of the coyotes are the edges of old burns and man-made clearings in the heavily forested areas. Also, the submarginal farm lands of fringe areas where sidehill pastures support a few livestock, the forest truck trails, woods roads, railroad rights-of-way, forested stream valleys with their occasional beaver meadows—all are main lines of travel for them. The groups have a wide range of activity and it may be weeks at a time before the same group reappears at a known location. Such habits make it extremely difficult for trappers to work effectively because long periods of unproductive trapping time are often necessary before contact is made. Even then, it is seldom that the whole group can be taken. The ones remaining often become drifters and may become more wary, traveling many miles before establishing a new range. This tendency to drift from traps and from hunting pressure may have something to do with the considerable extension of coyote range in recent years.

The coyote's role as a predator in the Adirondacks is a subject of considerable and sometimes heated controversy. There are people who feel that the coyote could be, or is, a threat to the deer herd. In the light of experiences from other States such as Michigan, such a threat is not likely to materialize. From 1936 to 1946, Michigan paid bounties on more than 23,000 coyotes without checking their increase, and yet that state's deer population is at an all-time high.

Food habits of the coyote in the Adirondacks are similar to those of the fox but are on a larger scale by volume. Whatever food source is most plentiful and easiest to obtain will be the main factor in the coyote's selection of a diet, whether it be varying hare, small rodents, deer, berries or carrion.

In other states where the coyote problem exists, the chief concern seems to be felt in the agricultural areas where predation on livestock and poultry cause justifiable concern. This could be es-

Left to right: gray fox, 46-pound coydog, normal coyote, and red fox

pecially true of the Adirondack and adjacent areas, where many of the landowners are small-time subsistence farmers and where sporadic forays by semi-wild dogs and an occasional bear, coupled with the increased activity of coyotes, might well put them out of business. On the other hand, the deer on which coyotes prey at least occasionally are likewise a threat to such near-wilderness farms.

The droppings of the animals throughout their present range often are matted with deer hair. Some of the deer no doubt are killed by coyotes. However, the carcasses of hundreds of unrecovered deer killed during the hunting season, winter-killed in the yarding areas or dead from other causes, provide a tremendous amount of carrion. The coyote has no objection to food of this sort. The more inaccessible parts of the Forest Preserve and private parks seem to be the most common areas for deer harassment and kill, and it is worth noting that it is on such areas that deer populations most often exceed the carrying capacity of the range. (See page 6).

In evaluating the data gathered by Department and other professional trappers in New York and the various methods employed in other States and Canada, the expertly set steel trap remains the most practical method for taking coyotes in the Adirondack region. Thus, any practical approach to the coyote control problem must lie in the use of professional trappers. The application of this method has two alternatives in general: (1) the State Trapper System; (2) the Bounty System.

The Bounty System: This system has been used on various species of nuisance wildlife since the country was settled. Nowhere are there records to show that the fox, the coyote or the wolf ever have been controlled effectively by the bounty. This system does not provide for special control on the areas that need particular attention and it is almost impossible to eliminate all possibilities of fraud. This is especially true when the area in which bounties are paid is small and adjoins non-bounty paying areas. Even on a state-wide bounty basis, there is always much evidence of the importation of animals for fraudulent bounty claims. Most coyotes or coydogs offered for bounty would be taken regardless of whether a bounty is offered or not. This is especially illustrated by the kill of coyotes in the Adirondacks during the deer season.

An excellent example of the ineffectiveness of the bounty on wolves and coyotes is provided by the experience of Michigan where, over a ten-year period (1936-46), $401,585 was paid

Coydog (left) and coyote. Note difference in size of nose patch

in bounties on 361 wolves, 23,165 coyotes and 3,653 bobcats. At the end of that period the number of wolves taken was unchanged, bobcats were two-thirds as numerous, and coyotes were one and one-half times more numerous.

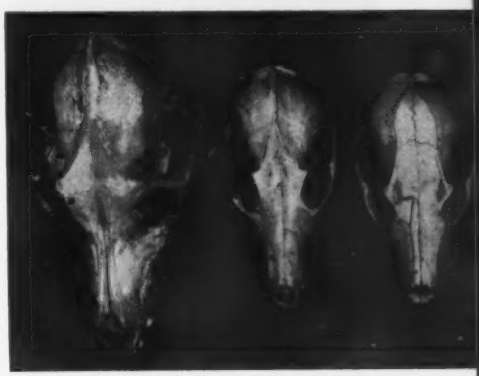
This is only a fraction of the evidence which points toward the ineffectiveness of the bounty system. It is indeed fortunate that today conservation agencies are getting away from "rule of thumb" methods and are getting down to programs backed by analysis of all available factual data.

The State Trapper System: This system is being used by New York and is being adopted by an increasing number of conservation agencies. The U. S. Fish and Wildlife Service, which maintains research laboratories to test methods of control for all species of nuisance and predatory wildlife, was instrumental in developing the system. It provides for a continuous systematic effort and for the concentrating of control where the need is greatest. Also, it places control activities in the hands of men trained in methods designed to minimize danger to other wildlife, domestic animals and humans.

A very distinct advantage of such a system is that the trained State trapper can carry out an extension trapping instruction service that already has proven highly successful in this and other States in controlling fox damage. It permits the extension of trapping effort over a much greater area than one individual ever could hope to cover. The State trapper visits complainants or other interested individuals and gives complete instructions for trapping the offending animals. Adequate traps, lure and supplies may be provided to help the novice get started. Periodic revisits by the State trapper improve the student's techniques until he is capable of handling the particular situation by himself and with his own equipment.

Such a system seems to be the most practical in so far as coyote and coydog control in the Adirondacks is concerned, and it is according to such a system that the Department has been operating for the past several years. And for the coming year, we are convinced that no change is required other than a substantial expansion of the program already in force; in other words, more trappers working more months, and more trappers teaching others to trap.

Specifically: Present plans call for doubling the size of the coyote control program. Trappers will be hired, the number to be determined by the amount of control found necessary. They will spend the greater part of the winter locating coyote concentrations and routes of travel, some of this reconnaissance being done from the air and all of it being in preparation for the period of actual trapping, for which we



Left to right: coyote, red and gray fox. Note difference in cranial ridges

already have found out that the most productive months are August through October. During the winter period they will also trap on areas of specific complaints, where results can be reasonably assured with the least expenditure of time. In the spring the trappers will locate and destroy dens and young, and conduct trapping demonstrations for caretakers of private parks, landowners, members of sportsmen's clubs and other interested individuals.

As pointed out above, there is nothing new in this proposed program; it is simply the program of the past year, roughly doubled in size but consolidated in emphasis as a result of what we have learned by trial and error. We do not anticipate that this program or any program, will eliminate the coyote from the Adirondacks. But we do think that it will serve to keep his numbers within safe bounds.

—Greenleaf Chase,
Earl Westervelt

PECONIC BAYS

IT'S our opinion that nowhere in New York State have the living paraded more vigorously than on the east end of Long Island. It is here, in the region of the Peconic Bays, that we wish to set the stage for this article. Here, in the throat of the giant "Y" which is Long Island—some 80 miles from New York City—we offer you a view of a parade lasting more than three centuries. Will you take the box seat near Robins Island, please?

On this small, wooded isle you find yourself mid-way in the narrows separating Great from Little Peconic Bay. Your gaze sweeps over some 30 miles of the Peconics' blue-green waters to the shimmering white beaches and the low wooded slopes beyond. To the west, at the head of Great Peconic Bay, Long Island's largest and longest river, the Peconic, brings in its placid waters. To the southwest beyond a narrow sandy barrier lie the waters of Shinnecock Bay and then, over the barrier beach, the pounding Atlantic surf. To the east of Little Peconic Bay, Shelter Island; and beyond that, between the flaring tips of the "Y", Gardiners Island, Orient Point to the north, Montauk Point to the southeast.

The stage is set. The curtain rises on a day in June, 1640. Indian canoes are in view, gliding across Great Peconic Bay toward the portage point into Shinnecock Bay. Neamug (*between the fishing places*) they called it—these Shinnecock Indians who made their home in the Peconic Bay area. And then, off to the east, through Gardiners Bay, around Shelter Island, skirting Noyack Bay and into Peconic Bay sails a small band of pilgrims from Lynn, Massachusetts. These hardy souls, who only 20 years after the Plymouth Rock landing found conditions in the Massachusetts Bay Colony too crowded, have arrived to take up their claim to 64 square miles on eastern Long Island; a claim secured from William Alexander, the Earl of Sterling. The purchase price: six bushels of corn. As you watch they bring their ship into North Sea Harbor and step ashore at Conscience Point to establish, at nearby Southampton, the oldest English settlement in New York State. But look to the east! There's another group, this one from Connecticut, bringing their ship in just outside of Little Peconic Bay on the north shore. They call their settlement Southold and you can probably recover your price of admission by settling local disputes over the question of who got here first—the Massachusetts or the Connecticut contingent.

It's safe to say this was one problem which didn't concern the settlers themselves. They were much too busy with such matters as survival. To this end they grasped every advantage offered by the land, the waters of the Peconics and the nearby sea. There were many. The soil, though thin, would produce crops. Fishing was excellent in the Peconics and adjacent waters, and whales, stranded in the tumultuous Atlantic shoal waters, were cast upon the ocean beach—an event eagerly awaited by the colonists, for the whale oil thus secured produced virtually their only revenue.

Nor did they wait for long upon the whims of wind and waves; they set up watch points on the high dunes to spot the whales off shore, and went after them in small boats launched from the beach. From your seat you can see the excitement in town when the red flag or *whale weft* is run up on the lookout's pole and the cry of "whale-off" echoes through the settlement. Boats were demolished and men drowned in this business of off-shore whaling, but it prospered, producing by the early 1700's some 4,000 barrels of oil a year and bringing into being the even bolder and more enterprising deep-sea whalers, with eastern Long Island headquarters in the deep-water port of Sag Harbor.

By craning your neck a bit you can look to the east over Jessups Neck and beyond Noyack Bay into the snug harbor at Sag, and watch its growth from 1750 to its greatest development in 1847 when over 60 deep-sea whaling ships made this harbor their home port, ranking it in importance with Nantucket and New Bedford.

OTHER things are happening around the Peconic Bays. The original settlements have spread out. More and more cleared farming land is visible from your seat. This, you think, is a departure from the colonists' main dependence upon the bays and the sea for survival. Not so. Croplands have already been drained of their meager organic reserves and you see a return to the bays; the beginning of the menhaden or 'bunker fishery, with early hauls from the Peconic Bays being used by these farmer-fishermen as fertilizer.

Thus began a new fishery and a new industry. Small groups of fishermen calling themselves by such names as the "Coots", "Fish Hawks" and "Pedoodles" soon began to devote all their time to the menhaden fishery in the Peconics, selling their catch to the farmers. Then, in 1850, a little way east of the Peconics near Greenport, there was established the first menhaden oil factory on the Atlantic coast—and another "million dollar" industry was begun. Big sailing ships replaced the small bay boats as the 'bunker fishery moved off shore. Huge purse seines, payed out from dories working from the mother ships, slipped around and under tremendous schools, the trapped 'bunkers being baled into the hold of the mother ships. And today you can see diesel-powered, steel ships tracking down the 'bunkers and bringing them in at better than a hundred million pounds a year.

This part of the play continues, but what of some of the other scenes in the early parade—the pirates and smugglers of the late 17th and early 18th Centuries? You saw plenty of them from your seat, for the outlying islands and channels leading into the Peconic Bays offered the best hide-out north of Chesapeake Bay. Perhaps you spotted Captain Kidd. He visited Gardiners Island in 1699, passed out some of his

Looking east: Riverhead and Peconic River in foreground, Shinnecock Canal at extreme right, Robins Island in middle distance

booty in exchange for provisions, and buried part of his treasure on Shelter Island just to the east of your lookout.

ASIDE from the Revolution the scene meeting the eye around the Peconics during the late 18th and early 19th Centuries was comparatively peaceful and remained so until about 1860, when the Peconic fishermen found they had a market for bay scallops. And scallops were everywhere in the shoal waters of the Peconics and around Shelter Island. Sailing craft rigged for dredging appeared in the bays to work the scallop beds, which proved to be among the largest and most productive along the North Atlantic Coast. Over 5,000 bushels of scallops were taken during the fall season of 1873 and by 1895 there were over 200 boats working the Peconic beds—many, the year around—and taking 150 bushels or more per boat in a good day. This was a picturesque fishery—the white-sailed scallop fleet tacking up-bay, sailing back over what everyone thought were inexhaustible beds. They were wrong. Sail gave way to power and although seasons and catch limit regulations were ultimately imposed and made progressively more restrictive, the scallop fishery has met the fate of so many of our "inexhaustible" resources; it has virtually disappeared.

Oystering is a more cheerful story. This is a fishery which has continued to grow (thanks to the development of cultural techniques) and which offers real hope of permanence if the bay waters in the Peconic area can be kept as clean as they are today. Unlike scallops, seed oysters when planted stay put. This sedentary habit has been exploited by some 11 large oyster companies on the east end of the Island to develop a meticulous planting, transplanting and harvesting procedure, ending up with an annual catch which, in 1949, amounted to 81,318,375 pounds or about five and one-half million dollars worth of the fattest, juiciest bivalves to be found up and down the Atlantic Coast.

As the Twentieth Century moves in, the scene which meets your eye is a far cry from that of the June day back in 1640 when you witnessed the landing of that small band of pilgrims at North Sea. The stage, then uncluttered save for a few Indian canoes, is now teeming with row boats, sail boats, yachts, speed boats, cabin cruisers and party boats. The long sweeps of once lonely beaches are lined with summer homes and cottages. The woodland trails of the deer and the Indians have become superhighways. Eastern Long Island has been re-discovered; this time by hundreds of thousands of summer refugees from the Big City.

And once again the Peconic Bay fishing is a chief attraction. Rod and reel fishermen begin to arrive in numbers by the middle of May for the famous weakfish run. Many of them ride the Fishermen's Special of the Long Island Railroad. Canoe Place is their starting point and the sport fishery is ready for them with some 20 to 25 charter and open boats. On the north shore Southold and New Suffolk likewise have fleets in readiness, and Greenport, to the east, boasts 48 charter and one open boat. Last year, if you had counted up, you would have tallied up to 375 boats a day in the sport fishing fleet on the Peconics. Weakfish, porgies, kingfish and some blues and small stripers are the chief attractions. And since the 1938 hurricane gouged a channel through the barrier beach into Shinnecock Bay, many of the boats which you have seen heading out from the Great Peconic Bay through the Shinnecock Canal have been bound for off-shore marlin, tuna and broadbill swordfishing.

SO a new era begins in the Peconics; a new act in the play. The cast will increase. There will be more and more players in the parade of the living. We hope that the modern players will absorb some of the pride of their predecessors in this beautiful land of the Peconics so that the play may go on in its setting of clean white beaches and clear blue bays.

—AL. BROMLEY

Cottontail

fauna

ALTHOUGH now our most abundant game animal, in the days of the early settlers cottontail rabbits were native only to the most southeasterly portion of New York State. As forests were cleared for cultivation cottontails responded to the creation of new favorable habitat by increasing their range to include most of the State.

At present, and for a great many years past, they offer sportsmen greater hunter opportunity than any other game bird or mammal. Rabbit hunters enjoy more than three months of open season and more cottontails are taken than any other game. In some years more have been bagged than all other game species combined.

Cottontails are primarily farm game, and may be found in varying numbers in almost all types of cover except extensive tracts of mature woodland. Ideal habitat for them consists of about equal quantities of cropland, grassland, brushland, and cut-over woodland, interspersed as small units. Individual rabbits require only a small unit of range, usually less than ten acres and often as little as one or two, the amount depending on quality of food and cover. Males inhabit a larger range than do females.

Cottontails are active mainly at night. Most of the daylight hours are spent in "forms" in and under herbaceous cover or at the base of a small tree or shrub, under a brushpile, or in a burrow. None of the materials which shelter the "form," or resting place, are placed or arranged by the occupant but each location is carefully selected to provide concealment, shelter from the elements, and an open avenue of escape from enemies. During periods of severely inclement weather, or when closely pressed by enemies, woodchuck burrows are favored retreats.

With a very few exceptions a list of plant species utilized to some degree by cottontails would compare closely with a catalog of all plants existent in their range. Although a wide variety is taken, definite preferences for certain species are shown. In summer, or when available, herbaceous growth is utilized almost exclusively. Short grass or weed areas, often provided by crop or pasture lands, are especially important as feeding grounds. Grasses, clovers, alfalfa, plantain, dandelion, and goldenrod are but a few of the preferred species. During winter months blackberry and raspberry canes, and buds, twigs, and bark of apple and sumac are favored.

For defense against predators cottontails depend on flight and concealment. Accordingly—and a very important point in cottontail management—the presence of preferred foods and good escape cover on an area is not an assurance that that area can sustain a high rabbit population. The location of feeding areas in relation to cover is of extreme importance in determining the odds against survival from one season to the next, and especially through the winter. Relatively wide open areas between the two are dinner invitations to predators.

Very late in February or early March the mating season begins. For the females it marks the beginning of a seven-month period of almost constant maternal duties. In that time average females give birth to four litters, each averaging five young. The latter, normally two to eight in number, are born after a gestation period of 28 days, in a nest constructed by the female. After parturition females are often re-bred within 24 hours. Last litters are normally born late in September or the first week in October. In this State cottontails do not normally mate during the same season of their birth.

The nest consists of a cup-shaped excavation about four and one-half inches deep, five inches wide, and seven and one-half inches long which is dug and lined with grasses a few days before parturition. Just before the young are born it is lined with hair pulled or bitten from the female's abdomen. After parturition the young are covered with more hair and the nest site is cleverly camouflaged with grasses and other debris to blend in with surrounding cover. The young are visited twice daily, in the late evening and early morning.

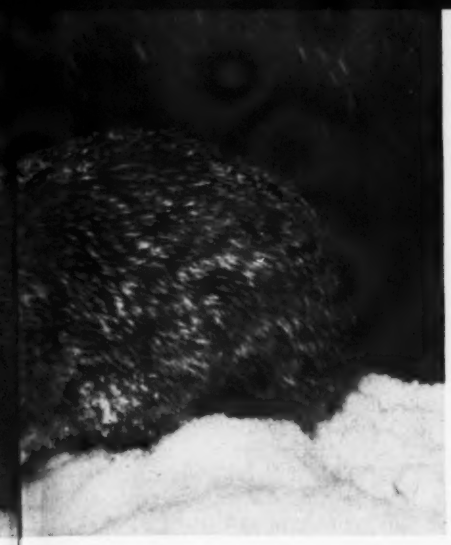
Young cottontails have a remarkable growth rate, reaching adult size in about 22 weeks. When born they weigh slightly more than one ounce, are blind, helpless, and covered only with a very sparse growth of hair. At an average age of seven days their eyes open. At the age of 12 days they begin leaving the nest for short periods to feed on green foods. Upon reaching the age of 14 days most leave the nest permanently and shift for themselves.

ADULT cottontails weigh between two and one-half to three and one-half pounds, depending on their age and quality of range. Females average two to four ounces heavier than males. The normal sex ratio of adult rabbits in the wild is about equal.

While their reproductive rate is high, the cottontail mortality rate is likewise very high. Nestling and juvenile losses are tremendous. Despite the masterly camouflage, about 35 per cent of all nests are destroyed by predators, farming operations, and weather. An even greater loss occurs in juvenile rabbits between the nestling stage and the time they reach adult size. From a season's total production of about 20 young per female an average of only four survive into the hunting season.

The principal enemies of cottontails are great horned owls, red and grey foxes, mink, weasels, the larger hawks and owls, cats, dogs, skunks, opossums, crows, and man, both as a hunter and as an automobile driver. Cottontails are high on the list of highway casualties.

Although cottontails are comparatively abundant, they are also subject to fluctuations, and in some years supply



does not equal hunter demand. Such has been the case for the past several years, although most recently populations are again increasing. Sportsmen reaction to the decline in rabbit numbers has been a rapidly increasing interest in rabbit importations for restocking, and increased pressure on the Conservation Department to resume a State-sponsored program.

As a logical prelude to any such expensive venture, and in view of published results of importations in other states, which disclosed no beneficial results, a research study was inaugurated in 1947 to determine the results which might be excepted from large-scale restocking efforts under average New York State conditions.

During the winters of 1947-48 and 1948-49 a total of 2,234 and 4,778 rabbits, respectively, was imported from Missouri and released in various selected coverts about the State. For positive identification upon recovery each was marked with a serially numbered metal ear tag before release.

IN SPITE of the fact survival of experimental rabbits was favored by an unusual set of conditions, losses other than to hunting amounted to 79 per cent of all those released. A known mortality of over four per cent occurred in less than 24 hours following release. Undoubtedly a much higher actual mortality occurred since ailing rabbits are known to seek shelter in burrows, brushpiles, etc., and deaths in such locations could not be accounted for. Known, or minimum mortality in rabbits of sub-average physical condition, but under very favorable weather conditions ran as high as 33 per cent within five to seven days after release.

Hunter take was less than nine per cent even though heavy hunting pressure often began the day following liberation. As might be expected, most imported rabbits proved extremely vulnerable in their new, unfamiliar surroundings. Within three weeks of liberation nearly three-quarters of the total number of rabbits shot were accounted for, even though the greater portion of the open season remained. Many rabbits taken during the first week were reported sub-normal in both sporting and eating qualities. Box trap surveys early in the breeding season showed a survival rate of less than 13 per cent.

As the study progressed it became increasingly apparent that the numerous debilitating factors plus environmental handicap involved in transferring terrified and semi-starved wild cottontails 1,000 miles for release in unfamiliar surroundings, often during stormy weather, was too much for most of the high strung, defenseless rabbits to overcome.

Based on the findings, an analysis was made of the costs which would be necessary to effect a noticeable increase in the annual kill. To increase the total kill by only ten per cent during the year of our poorest reported rabbit kill would cost the State $300,000 based on current prices even if the returns

Cottontails, and (with ear tag) a snowshoe

Small as these returns would seem in converting results to terms of expectancy under average conditions an even more discouraging picture is disclosed. Based on mortality which occurred between shipment and release dates, the physical condition of stock used in the study except as indicated, was far superior to average imported stock as shown by importation records maintained over a period of many years. Too, it is a matter of record that the New York State winter of 1948-49 was the fourth warmest in meteorological history. The ground was bare during and following each release, assuring a maximum of available food with a minimum exposure to danger during the period of acclimation. Therefore, the above quoted figures must be considered as the extreme best which might be attained in any one year, and definitely above average over a period of longer duration.

obtained in the study were double. More to the point, in order to make up the difference between a poor and good rabbit harvest, as indicated by reported kill records, by stocking with imported rabbits during the open season would mean an outlay of more than $3,000,000.

OBVIOUS conclusion is that importation of cottontails for the purpose of increasing hunting potential in areas already occupied by rabbits is both ineffectual and economically unsound. Improvement of habitat to increase the carrying capacity of the land for cottontails should yield far greater dividends. As a logical successor to the study of importations, investigations are now under way to determine the best and most practical methods for carrying out such habitat improvement practices.

—JOSEPH DELL,
Game Research Investigator

The Big Blow of 1950

As we went to press, reports were still coming in (others were still *not* coming in because of power failures, windfalls, etc.) as to the extent of the damage done to Department facilities and to the Forest Preserve by the storm of Saturday, November 25. But we know already that the damage was great; also, that it might have been far greater.

Word from the District Foresters' offices did indicate tremendous damage to trees on both State and private lands. But with many telephone lines still out of service and a great many roads as yet impassable, a more thorough survey of the havoc wrought by the wind could not be made for several days. The Department, however, was planning an aerial reconnaissance by the District Foresters just as soon as flying weather would permit.

In eastern New York the hemlocks seemed to have suffered most; aspen were also hard hit as were scatterings of hardwoods. In city and suburban communities, many elms and ornamentals were down. Most valuable species lost on plantations were white pine, larch and spruce. A notable thing about the storm was its selectivity; in many stands it picked and felled its victim trees as carefully as a forester marks timber for cutting. Hemlocks came up by the roots; other species were snapped off, still others twisted and felled. Dead and weakened branches fell like crazy.

The State's nurseries at Saratoga and Lowville escaped unharmed. And a check, still incomplete of the Department's postwar construction and rehabilitation work at game farms and hatcheries revealed no damage of any consequence although most locations of this work reported temporary power and telephone line failures. Cold Spring Harbor Hatchery out on Long Island had high tide water but no damage was suffered except that about 2,000 brown trout yearlings were believed lost there.

At the Ithaca Game Farm, 200 feet of an eavesdrop was removed by the high wind and 15 hangars were destroyed; snow fence and posts were toppled in wintering yards; a newly-covered holding yard had its netting swept up and riddled with holes; anchor cables were ripped out of holding pens, and some bird traps were destroyed. The new nursery building at Middle Island Game Farm on Long Island was considerably damaged, and pheasant pens were overturned at the Rogers State Game Farm at Sherburne.

Estimated damage to many of the State's 34 public campsites was running into high figures; it will be necessary to clean up the debris left by the storm, repair or replace picnic tables, fireplaces, water lines, telephone and power lines and repair damage done to bathhouses and latrine buildings. The Big Blow of 1950 hit hard in this department. Damage was heaviest at the Long Island and Lake George campsites, but Golden Beach in the Adirondacks took a severe licking.

The new ski center at Belleayre was littered with felled trees and roads were washed out. Whiteface Mountain Ski Center, on the other hand, suffered no damage despite the fact that nearly four inches of rain, driven by a wind that may have reached 100 miles per hour, fell on it in an hour. The Department's soil cover planting on the ski runs and trails withstood this terrific onslaught without sustaining any damage—an impressive demonstration of what good cover planting can do. The Center's power line, however, was a casualty.

The Bureau of Forest Fire Control's telephone line system was badly snarled by falling trees and limbs, and fire trails were littered with blowdowns. Damage to Ranger cabins and fire towers was believed negligible although some glass and sash damage is sure to have been sustained. The Bureau believes, however, that most damage can be repaired by labor with little outlay for material.

The Department's law enforcement "navy" took something of a beating in the Metropolitan New York marine area. Shellfish Boat No. 3's engine was waterlogged. Boat No. 12, located at Great Kills, carried two moorings ashore with it during the storm, its left side rammed by a 4x10 beam that completely smashed four planks. A third of its hull filled with mud; all of its glass was broken. Boat No. 13, tied up at Princess Bay Dock, was half afloat with two rear planks torn out, 4 ribs broken.

Coming as it did on the last day of the Adirondack deer season, the storm marooned about 75 to 100 hunters far back in the woods in various sections of Essex and Franklin counties. Tote roads and trails were jammed shut, and those who had taken much equipment in with them had a hard time clearing out until Department personnel went to their aid. The Cold River section was particularly hazardous. A pack train of mules was busy about three days getting hunters and their equipment out of the woods.

EVERYTHING considered, it appears that the Adirondack and extreme eastern sections of the State were hardest hit. Damage to trees in Essex and Franklin counties was principally to balsam, spruce and hemlock, but hardwoods suffered too. As one Ranger put it: "The woods are one grand big jumble." An indication of the widespread damage to State forests was evidenced at the Meacham Lake Campsite in southern Franklin County, where between 30,000 and 40,000 good spruce were wind-thrown.

Officials are hoping that further examination will dispell the gloom caused by early reports: many are thankful that the storm was no worse—which it certainly would have been if temperatures had been lower. But all are agreed that the Big Blow of 1950 was indeed a severe blow to the State's resources and recreational facilities.

—Roland B. Miller

Saga of the Paper Boats

By John Bohne Ehrhardt

THIS all began when young Mr. George Waters of Troy received an invitation to a masquerade. It must have been about 1864 or 1865. A mask cost ten dollars and George didn't have that kind of money. He made his own mask of laminated paper —and a new industry was born.

Out of that mask experiment came the idea of building boats of paper. George talked his father, a box manufacturer, into financing the process and the firm of Elisha Waters & Sons built paper boats at the Troy address from 1867 to 1876. Most of their boats were racing shells, but quite a few cruising boats were built.

In 1876, the factory burned and the firm was reorganized under the name of Waters & Balche. Under this designation, they built more boats and also five (that we have found so far) paper domes for astronomical observatories. One of these was on the Proudfit Observatory in the Albany area and was in place from 1878 to 1899. Apparently, it was as good as new when taken down. The granddaddy of them all, though, was the big dome on the observatory at the West Point Military Academy. This was built of three plies of paper, placed in position in 1881, repaired only once—in 1924—when one more ply of paper and a layer of canvas were added. It was still in satisfactory condition in 1932, the last inspection of which we have record.

This writer got involved in the paper boat business about three years ago when a book, published in 1876 and entitled "The Voyage of the Paper Canoe," fell into his hands. The little volume had been written by a character named Nathaniel Holmes Bishop of Toms River, N. J., who had bought one of Waters' boats at Troy and took it from the factory to Cedar Keys in Florida on its own bottom.

Like George Waters' mask so many years ago, that book set us to thinking. The old-time builders had used three to five layers of manila paper, bonded and waterproofed with shellac and laid up over a solid wood mold. We figured that such a boat could be built on an ordinary kayak-type frame, with the building frame remaining in the finished hull to serve as bracing. Also, we figured that we could use the modern plastic glues which have shellac beat at least sixty ways to Sunday.

It has worked out very well. We built our first boat to about the dimensions of the Waters-built boat of 1875 that Bishop used on his trip to Florida. We figured that, with all our modern improvements, we ought to be able to turn out a hull much lighter than the 1870 product. We did; Bishop's boat weighed 57 pounds. Our 1948 model weighs 56.

At that, we are not disappointed. The boat has proved very satisfactory in use; tough, seamless, water-tight. Its weight, one will note, compares favorably with an aluminum or plywood hull of the same size (14 foot). The important thing, we think, is that this is one form of building which the amateur and the small builder can use since it does not require a huge investment in metal-forming dies or in an autoclave mold. Also, it can be used to replace conventional building methods, saving much time and skill. One must be careful in assembling the framework, but any ten-year-old can apply the paper skin.

VERY important too, is this fact: the paper process is economical of timber and every conservationist will agree that this will bear some consideration. The amount of wood used in the skeleton is small. Wood pulp is used for the paper, it is true, but the less valuable trees can be used in paper-making. Indeed, grass papers are very good and could be substituted if desired. We usually include one layer of muslin or canvas in the paper skin to give added strength. One thing we would like to stress is this: the process is not particularly cheap, though it is not more expensive than the more conventional methods of boat building. Each 14-foot paper hull uses almost thirty dollars worth of the plastic glue and the wood frame, fastenings, etc., cost about as much as the average kayak. However, it is still a lot of fun.

We get a big kick out of taking the original boat from lake to lake atop the car, looking for strangers who will shout "You're nuts. It will come apart the first time you put it in the water." My boat has been in and out of the water many times in the last two years and seems none the worse for the wear.

Our greatest fun, though, has come from telling people about it. Our original piece on the paper boats of Elisha Waters was published in Rudder magazine in 1949 with a follow-up on the performance of our own boat.

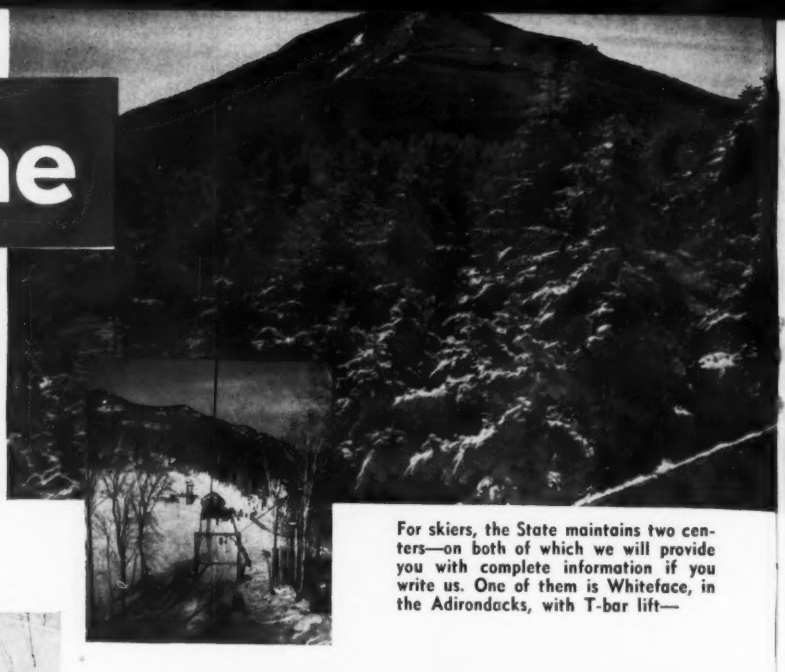
These and other publications have brought us friends, each with something new to contribute. Early in the game, for instance, we received a letter from W. VanB. Claussen, director of water safety for the National Red Cross. We were not surprised to find Mr. Claussen favoring the idea since a paper boat, like a wooden hull, has sufficient buoyancy to support her passengers even when full of water, while the average metal boat, kayak or folding boat has not, unless air chambers or bladders are added.

The interesting item Mr. Claussen was able to supply though, was this: he had known and used Natty Bishop's boat as late as 1917. That boat had been built by Waters around 1874. Her new protector fixed the old boat up with a coat of varnish, used her every year until 1917, at which time the boat-house burned with the grand old girl inside.

We still say paper is tough.

Wintertime

Things to Do and See



For skiers, the State maintains two centers—on both of which we will provide you with complete information if you write us. One of them is Whiteface, in the Adirondacks, with T-bar lift—

TROUT STREAM

LOG DAM

SKI-TRAILS

ICE FISHING

CROSS-COUNTRY

CHOPPING ICICLES

LOGGING

THE PROGRAM FOR FISH AND GAME

What We All Should Know About Its Cost, Progress, And Future

THE fish and game program of our State ran into a real crisis during the post war period. It was a crisis caused by the fact that the cost of resident hunting and fishing licenses was still pegged at the 1939 level, while at the same time the entire country had been caught up in a spiral of inflation which raised the price of wages and materials far above the pre-war level. Still another important factor in the crisis was the fact that hunting and fishing pressure on our fish and wildlife resources had greatly increased.

These problems were the object of many discussions during the immediate postwar period and all hands came to the inescapable conclusion that our State would have to embark on an enlarged fish and game program. It followed that in order to finance it, if we were to continue the principle of the conservation fund, it would be necessary to raise the schedule of license fees. Legislation providing for these increased fees was therefore sponsored by the New York State Conservation Council and passed the Legislature of 1948. Our sportsmen showed real vision in taking this action. The act provided that the new scehdule of fees would be in effect for a three-year period beginning January 1, 1949—which in turn means that the Legislature which is about to convene will need to take action to remove this time limit or our fish and game program will have to be reduced to the pre-war level, after December 31, 1951.

This is, therefore, the time to make an appraisal of the enlarged fish and game program as the basis for such legislative action.

Readers of the CONSERVATIONIST will recall that back in '48 following the enactment of the increased license fees I wrote a series of three articles outlining our plans for the enlarged fish and game program. As a matter of fact, at that time we had already started on the program because the previous legislature, anticipating such a program, had authorized larger appropriations than we had before. In this way a delay of a year in launching the program was avoided. Subsequent articles by various authors have reported on a number of the new and enlarged activities.

The purpose of this article is to try to summarize in as few words as possible how much we are actually spending in dollars and cents on various parts of the enlarged program and to report the progress and accomplishments which the increase has made possible. But first a word about the actual amount of the increased income.

At the time license fees were raised it was estimated that they would increase the annual income into the conservation fund by about a million dollars. Actual receipts have shown that this estimate has thus far held very closely. Also on the income side of the ledger the fund has benefited from increased allotments of the federal Pittman-Robertson funds. It was also possible to recapture some conservation fund money which had gone to the Divisions of Finance, Conservation Education and the Department of Law—by having these activities financed out of other State funds (not Conservation Fund). These savings were applied to strictly fish and game activities.

For the purpose of our discussion of the enlarged fish and game program the important point here is that the increased income made it possible for the Legislature to increase the appropriations for the current fiscal year of 1950-51 by $1,412,698 over the appropriation in 1946-47 of $2,170,520 (the last normal year at the old level). Again, about a million of the increase was made possible by the increased license fees, with the balance coming from larger P-R aliotments and from the savings previously mentioned. This means, as we had anticipated, that we now have annual appropriations from the Conservation Fund for the Division of Fish and Game of about three and a half million dollars.

Although our discussion here relates primarily to the Conservation Fund, it should be noted that the Division of Fish and Game has had the benefit of $2,800,000 appropriated from the Capital Construction Fund (Postwar Fund) which has gone into permanent improvements in fish and game facilities. It should also be noted that much of the progress which will be reported would not have been possible without these capital expenditures. For example, greater fish production is possible because of new and expanded hatcheries. Special note should also be made of the fact that the program for the acquisition and development of public fishing rights has for the past several years been financed entirely out of the Capital Construction Fund instead of the Conservation Fund, as heretofore. Aside from this mention of the Capital Construction Fund, the rest of the discussion relates entirely to appropriations from the Conservation Fund.

A part of the new Catskill hatchery. Capacity 34,000 pounds

WHERE DOES THE MONEY GO?

On Page 4 you will find a table showing the appropriations for various fish and game activities for the current year; those for 1946-47; and in the last column the increase or decrease for each item. This table and the accompanying footnotes merit careful study.

A glance at the increases for the various activities will show at once that nearly 98 per cent of the increase has been assigned to field activities. For example, the first item of Administration, which is simply the Central Office of the Division of Fish and Game, shows an increase of only $5,000. It should be made clear that there is no charge made against the Conservation Fund for the general administration of the Department. For those who are not familiar with the Division's Central Office, it should also be made clear that while a sizeable appropriation of $200,000 is shown—most of this goes for compensation insurance, contributions to the State Retirement Fund, printing (licenses, syllabi, laws, etc.) and other expenses which serve the entire Division.

Actually, there has not been one additional person added to the Central Office under the enlarged program, and I am extremely proud that the Director of the Division and his assistant and their small clerical staff have been able to administer the enlarged program without added overhead cost.

LAW ENFORCEMENT

Note that we are now spending nearly a million dollars, or $278,000 more than we did in 1946-47, for law enforcement. The expansion and improvement in our law enforcement work was one of the most clearly indicated needs during this postwar period. For some reason or other there is always increased lawlessness following a war and this postwar period was no exception, and coupled with that, I found that our force was poorly equipped, underpaid and inadequately financed as far as travel funds were concerned. Here is a list of the more important things which the increased expenditures have made possible.

1. Thirty new game protectors.
2. An increase in the minimum salary of a game protector from $1200 to $2346, and an increase in the maximum salary from $1800 to $3036.
3. An increase of $133,700 in travel funds —which has increased the average allowance per month per protector from about $65 a month to $100 a month.
4. New uniforms for the entire force.
5. The replacement of obsolete and worn out boats.
6. The purchase of radio equipment.
7. Training schools—especially for new game protectors added to the force.

These improvements have been reflected in a substantial increase in the number of violators apprehended (now up to 5,028 for the last fiscal year), and in a larger collection of fines and penalties (now up to $113,643)—representing an increase of 20 per cent in fines and penalties. When the final figures for the current fiscal year are in, still further increases will be noted.

FISH CULTURE AND STOCKING

Prior to the enlarged fish and game program it had been impossible to stock more than half of the trout which were recommended for our waters by the Biological Survey. At the same time fishing pressure had greatly increased—and we should remember there are even more fishermen in the State than there are hunters. Therefore, one of the important objectives was to increase our production at least to the point where the full number recommended by our biologists could be stocked.

A plan was, therefore, inaugurated to increase the productive capacity of all existing hatcheries up to the limit of the water supply and to build a new trout hatchery in the Catskills—one of the few places where an adequate water supply could be found and where a hatchery should be located for transportation reasons. As soon as this plan was completed it was translated into action with post-war construction money. By the end of this fiscal year all construction will be virtually complete.

In order to finance the larger production, it will be noted from the table that fish culture appropriations have been increased by $257,835.10 or 60.1 per cent.

The record that the hatchery boys made in both increased and more efficient production with this greater amount is another thing about which I am very proud. In the first place they have increased production by 141,526 pounds to a total of 380,000 pounds, or an increase of 59.4 per cent. In the second place, while one would scarcely expect that the percentage increase in money would be accompanied by a corresponding increase in production (because wages and food costs have gone up so much since 1946) the record shows that this is exactly what happened.

By making full use of the facilities which will be completed by the end of this year, it is anticipated that our production the following year will go to 404,000 pounds. When that production is achieved we will be able to stock 100 per cent of the recommended number of fingerlings and at least 75 per cent of the recommended number of yearlings.

In addition to this trout production, we will next year for the first time have available for full operation the new Chautauqua Muskalonge Hatchery, which was only in partial operation this year. It is also important to note in connection with all of our hatchery work that we are now doing almost all of the stocking with Department men and equipment.

INLAND FISHERIES AND FISH SALVAGE

An increase in appropriation of $51,393 for the activities of the Bureau of Inland Fisheries was almost entirely used to expand the fish salvage operations of that Bureau. These operations had been started on an experimental basis in 1945, and in 1946 we had two crews operating. In accordance with our plan, this number has been increased to five salvage crews. In terms of result, again the figures speak for themselves. In 1946, 55,154 pounds of fish were salvaged and transferred to waters open to fishing, and on the basis of current figures 180,000 pounds will have been salvaged during the current year. In addition, thousands of pounds of undesirable species will have been destroyed.

It appears that we are now approaching the saturation point in the expansion of our fish salvage work because there are just so many reservoirs and other waters closed to fishing which provide sources. I wish this were not so, because our experience has shown that it is very much cheaper to salvage and transfer fish than it is to grow them in a hatchery. It should also be noted in passing that these trained netting crews often provide extremely valuable service to District Biologists who are undertaking population control or other management work.

FISHERIES MANAGEMENT AND RESEARCH

Understandably, one of the most important objectives of the enlarged program was to extend our field services in fisheries in the direction of doing more actual fish management in our waters. (Accordingly, as indicated in the table, the additional sum of $94,886 has been allocated for these purposes.) As we had planned, we have added two new fisheries district units—one at Norwich for Central New York, and one in Watertown for the Ontario-St. Lawrence area—giving us now a full complement of five such units. The field services which these District Biologists are now giving has proven to be one of the most popular and productive parts of the enlarged program, even though the cost is small compared with some other items in the program. There is always a tremendous backlog of requests for service on many local waters which are keeping our district men on the move the entire year. Revising stocking recommendations to meet changing conditions and finding answers to all kinds of fisheries

problems seems to be a never-ending task. For example, our district men will have carried out 435 separate field studies this year—and have an even larger number lined up for next year.

One new management activity I think is worthy of special mention. I refer to the project which has as its aim the restoration of former Adirondack brook trout waters which have been ruined by the introduction of perch or other man-made causes. This year this project is costing $12,000, a small sum in relation to the potential benefits.

When the new Dingell-Johnson program gets under way as of July 1, 1951—although we have not yet been informed exactly what type of projects will be approvable—I think with the present fish management and research set-up which we have we are in an excellent situation to administer the program efficiently over the entire State. We will apparently have about $89,000 of new money with which further to expand our fisheries work. This addition to the $335,852 we are now spending will bring this part of our program into better balance with the rest of it. We have been counting on it to do just that.

A word about fish research. An increase in research work has been a natural, healthy outgrowth of increasing the districts and of digging more deeply into pollution and other fisheries problems. In all districts detailed studies of survival, migration and growth rates of different kinds of fish and in different waters have been expanded. In addition, we have made use of facilities available at Cornell University and the Cortland Experimental Hatchery to test not only survivals of planted trout but also to test propagation methods of studying actual field survival of fish reared by different techniques. Research in pollution has been concerned mainly with testing toxicity of substances encountered in field work which require further experiments not possible in routine work.

Because of the nature of the work, our fish management and fish research are carried forward together, largely by our regional biologists. It is, therefore, not possible to say exactly how much is spent on each. I don't know that it matters particularly, because all of our investigations have a direct practical application in management. They are all designed to improve fishing.

MARINE FISHERIES

The table indicates that allocations for maintenance of the Bureau of Marine Fisheries in the fiscal year 1950-51 are larger by $12,988.00 than those earmarked for this Bureau in 1946-47, and may be charged off entirely to statutory annual increments to employees and to the upward spiral of prices for supplies and equipment which has continued over the past few years. No new functions have been taken on by this Bureau since 1946. Due to changes in the law and upward revision in fees collected, this Bureau is now on a dividend paying basis. Receipts in 1949-50, the last year available, amounted to $50,175.98. Total allocations to the Bureau for fiscal year 1950-51 amount to $45,750.00.

GAME MANAGEMENT

As we had planned, the largest single increase, or $481,836, has gone into a greatly expanded game management program which has as its object the improvement of food and cover for wildlife.

In order to carry out this program we created the four new game management districts which were lacking and now have a full complement of nine. The last one was recently set up for the western Adirondacks with headquarters at Watertown.

The biggest, and I think the most significant addition to our management program has been the project known as PR-48-D. This was described in the 1949 Feb-March issue of the CONSERVATIONIST and in a special bulletin entitled Wildlife and Good Land Use. Although this project is quite new—some idea of its growth and scope can be gathered from the simple fact that we have already established working cooperation with over 1700 farmers and landowners. In 1948 we worked on 112 farms; in 1949 on 600 farms; and in the current year on over 1,000 farms. All together 10,206,144 trees and 2,624,840 shrubs have been planted for food and cover. (We have developed the Painted Post Nursery to grow this stock.) 51,208 rods of fencing have been built to protect woodlands from grazing, and 157 marshes have already been constructed and many more are planned.

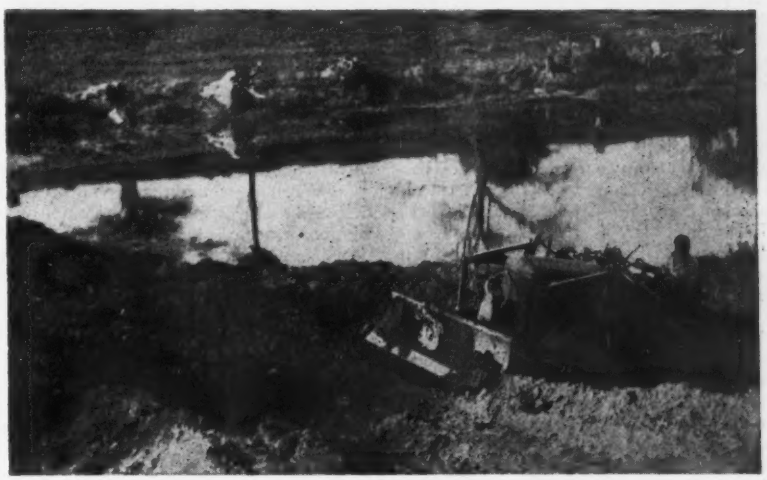
This basic work on the land is bound to produce dividends for wildlife—not for just one year—but for many years to come. We are now annually investing about a third of a million dollars in this work.

Another major part of the management program is the acquisition and development of game lands. Acquisition of all but a small portion of the Perch River waterfowl area (Jefferson County) has been added—and development work will get under way next spring. The Three Rivers upland game area (Baldwinsville, Onondaga County) has already been substantially developed. The Oak Orchard Marsh has already been developed—and work is in progress on the Vischers Ferry area on the Mohawk.

We are now budgeting around $100,000 a year for this type of work—or $65,000 more than we did in '46-'47.

Management has also been expanded in a number of other directions. For example, we have built up a staff of trained trappers; an emergency winter deer feeding program; and have undertaken control of the water chestnut which has infested the Mohawk and Hudson Rivers. A discussion of the new coyote problem will be found on page 12 of the December-January 50-51 CONSERVATIONIST.

In addition, the enactment of laws giving the department greater regulatory powers has added to the field work which is necessary as a basis for sound regulation.



A typical small marsh being built under PR-48-D

GAME RESEARCH

It should be noted that this activity, except for certain over-all administrative and stenographic personnel, is financed out of Pittman-Robertson funds. In 1946-47, the allocation to game research was $106,574.02. In 1950-51 an increase of $50,812.00 or a total of $157,386.02 has been allotted. This increase is due almost entirely to mandatory increases in salaries. The total number of permanent personnel has remained the same, although funds for temporary labor have been increased by some $8,000. As in 1946-47, the objective of the game research carried on is to obtain factual data regarding game abundance and the factors influencing it and how they may be manipulated to maintain and improve hunting in the State.

GAME FARMS

During the war game farm production was, of necessity, greatly curtailed. In 1944, for example, only 28,000 birds were distributed from the State farms. At the same time a series of bad rearing seasons in the wild caused a crash decline in the pheasant population throughout the entire northeast. At the end of the war, because pheasants were so far below the known carrying capacity of our pheasant range, you will recall that the game farm program was greatly accelerated in an attempt to give nature an assist. Production rose steadily until in 1947 and in 1948, over 100,000 birds were distributed. At the same time the 4-H program and the game club program had increased until we were supplying over 100,000 chicks for cooperative rearing.

In 1948 by general agreement the pheasant program for 1949 called for a 15 per cent reduction and plans were made accordingly. However, in spite of this, due to improvements in techniques coupled with ideal weather conditions, the production surpassed original estimates to the point where it was approximately equal to that of the previous year. During the current year, or 1950, our complete distribution consisted of 82,712 nine to eighteen weeks old pheasants, 101,608 day-old pheasant chicks, 5,204 quail, 2,034 ducks, 2,169 day-old ducklings and 100 pheasant eggs. This represents a cut-back in pheasant production from 1949 of about 20 per cent.

On the financial side—while the table shows an increase for the current year of $140,761 over '46-'47—it should be noted that our current appropriations are $124,074 less than the peak expenditures reached prior to the cutback. Further economies in this work have been made in the budget for the coming year and the savings effected, like the previous savings, will be applied to food and cover projects.

ENLARGED FISH AND GAME PROGRAM

A comparison of appropriations between 1946-47 (last normal year at old level) and 1950-51 (current fiscal year). Table applies to all activities financed from Conservation Fund.

ACTIVITY	1946-47	1950-51	Increase or Decrease
Administration or Central Office	$194,707.00	$200,097.00	+ $5,390.00
Law Enforcement	679,406.23	957,609.00	+ 278,202.77
Fish Culture and Stocking	416,508.90	674,344.00	+ 257,835.10
Inland Fisheries and Fish Salvage	44,847.00	96,240.00	+ 51,393.00
Fish Management and Research	83,580.15	178,466.00	+ 94,885.85
Marine Fisheries	32,762.00	45,750.00	+ 12,988.00
Game Management	(1) 161,839.00	(1) 643,675.00	+ 481,836.00
Game Research	(1) 106,574.02	(1) 157,386.32	+ 50,812.30
Game Farms	(2) 306,165.00	(2) 446,926.00	+ 140,761.00
Division of Finance	53,402.78	(3) -0-	- 53,402.78
Division of Conservation Education	44,379.00	(3) -0-	- 44,379.00
Department of Law	17,781.00	(3) -0-	- 17,781.00
Deficiency (Compensation Insurance)	-0-	(4) 27,374.00	+ 27,374.00
Pittman-Robertson (unallocated)	(5) 2,980.48	(6) 82,399.68	+ 79,419.20
Unallocated	25,587.44	(7) 72,951.00	+ 47,363.50
Total Appropriations	$2,170,520.00	$3,583,218.00	+$1,412,698.00
Less P-R (75% of total) refunded by Federal Government	112,000.00	450,000.00	- 338,000.00
Net chargeable to Conservation Fund	$2,058,520.00	$3,133,218.00	$1,074,698.00

(1) Includes Pittman-Robertson appropriations
(2) Peak appropriations were $571,000. in 1948-49 fiscal year
(3) No longer financed by the Conservation Fund
(4) Takes care of deficiency in 1949-50 fiscal year
(5) Expended in a subsequent year
(6) Will be allocated later; life of Pittman-Robertson fund is two years
(7) Will be allocated later during current fiscal year.

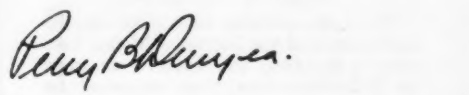
THE FUTURE

Nearly everyone who has had some first-hand knowledge of the work going on under our enlarged fish and game program, or has read about it in the CONSERVATIONIST, The Fish and Game News or in one of our information bulletins, tells me that our Division of Fish and Game is now on the right track—and should keep the program moving ahead as fast as possible. I am convinced myself that a vast improvement has been made. No doubt, as we indicated when it was launched, we will have to adapt it to changing conditions, as they occur, and make changes as experience and new information points the way. But I believe the program is basically sound.

Our big problem is how to inform people as to what is actually being done. Despite this fine magazine and the other publications we have made, and despite press releases, motion pictures and other information outlets—there are still many who do not know about the progress which is being made.

We solicit the help of everyone who can assist us in getting this information to the public—because future progress in fish and wildlife conservation depends so much on public understanding and support.

When the time limit expires on the present license fee schedule—I have been asked whether the department will recommend another increase in license fees. I do not think another increase is indicated at this time—but I do feel that the time limit on the present schedule should be removed so that income into the Conservation Fund can be maintained—thus making sure that the present program and present progress can be continued.



Conservation Commissioner

SNOWSHOEING

DEER

OTTER

And the other is Belleayre, in Ulster County between Fleischmann's and Pine Hills, within easy reach of the metropolitan area, and offering the only chair lift (2,950 feet) in New York.

PARTRIDGE BURSTING OUT

HOUNDING

TRAPPING

PULPING

CUTTING FIREWOOD

NICE LOOKING STATE

THE STATE AS A TAXPAYER

THERE has been a long recognized need for more complete information about the forest resources of the Adirondack and Catskill areas. This information is now in the process of being collected. The survey currently being made by the State Board of Equalization and Assessment will provide comprehensive information about forest conditions and values which will be both interesting and important to conservationists and to those interested in local government.

The State of New York is the largest owner of land and annually pays the largest tax bill on land of any individual or organization in New York. These facts will come as a surprise to many citizens of the Empire State and will raise immediate question, "How come? We know the State owns land, but isn't such land exempt from taxes?" Let's look at the situation:

In 1949, the State of New York paid nearly two million dollars in taxes on land that it owns—to towns, villages and school districts. The largest part of this tax bill was for the 2,410,125 acres in the Forest Preserves located in 16 counties in the Adirondacks and Catskills. Taxes in the Adirondack area amounted to $1,369,645.33, while in the Catskill area the sum was $87,658.98. Reforestation Areas, scattered throughout the State and containing 498,195 acres, were subject to local taxes amounting to $90,801.63. A third category of State-owned land on which taxes totaling $415,198.46 were paid in 1949 is called "special" lands and include parks, game refuges and lands owned in conjunction with various State institutions.

The State tax bill looked like this for the year 1949:

STATE TAX BILL, 1949

Purpose of Tax	Forest Preserves	Reforestation Areas	Special Lands	Total
General	$701,742.02	$29,605.94	$136,885.82	$868,233.78
Highway	263,008.28	24.650.20	25,899.75	313,558.23
School	457,836.09	35,095.55	243,300.77	736,232.41
Miscellaneous ..	34,717.92	1,449.94	9,112.12	45,279.98
Total ...	$1,457,304.31	$90,801.63	$415,198.46	$1,963,304.40

These taxes are paid to the towns and tax districts in which the State-owned lands are located. They are an extremely important part of the tax revenues of some towns, especially those in the Forest Preserve areas, where as much as 80 per cent of the land in a town may be State-owned.

The assessed value of the State lands is determined by the local assessors. Some control, however, is exercised by the State through its right to approve the assessments after determining that they have been made in accordance with the requirements of various laws. Forest Preserve lands and "special" lands are supposed to be assessed and taxed at a like valuation and rate as similar lands of individuals within the tax districts where situated. The assessment of Reforestation Areas is restricted to an amount not to exceed the price paid by the State if acquired by purchase, or if acquired by gift, the assessment may not be greater than the assessment shown on the rolls two years prior to the gift. Most reforestation lands have been purchased at $4 an acre.

Approval of assessments of State-owned land is the responsibility of the State Board of Equalization and Assessment. This Board, set up by the Legislature in 1949, is headed by Comptroller Frank C. Moore, with Spencer E. Bates, President of the Tax Commission, and John E. Burton, former Director of the Budget, as members. The big and difficult job of the Board is the review of equalization rates throughout the State. It is also working with local officials—and groups interested in local government—in the improvement of assessment procedures.

The Board realized early in its work that forest lands comprise an important segment of the tax base and that the appraisal of this type of property is a highly specialized field. To intelligently approve assessments on State-owned land and to arrive at rates of equalization among towns, especially those in the timbered areas, a great deal of information about forest conditions and forest land values would have to be available. As a first step, the Board secured the services of a consulting forester to make appraisals and to recommend methods of securing reliable information on large forest areas.

An examination of the problem soon showed that, in general, forest land assessments were not producing consistant and equitable results. Forest areas are large and assessors do not have available the means to secure the information needed for sound assessments. The Board found that it would need information on about six million acres of land in the Adirondack and Catskill areas to be able to meet its responsibilities in approving assessments on the Forest Preserve lands. Both State-owned and privately-owned lands had to be included, since the assessment of the State's land must be similar to that of privately-owned land.

No source of adequate information was found to exist. Consideration was therefore given to the usual timber cruise, but this method was found to be very expensive and time consuming. Investigation indicated that even better results could be obtained through the use of aerial photography. A number of public agencies and private companies interested in forest lands have been using aerial photographs in mapping and making timber estimates with excellent results. Fortunately, the expensive work of flying and taking photographs of all of New York State had been completed and prints of the photographs of the six million acres being considered could be obtained.

One survey of forest land was already under way in New York, conducted by the U. S. Forest Service. This survey uses aerial photographs, a substantial number of which were supplied by the Conservation Department. The data being compiled by the U. S. Forest Service, unfortunately, are not detailed enough to serve the needs of the Board, but the Forest Service survey has afforded much help in planning and developing a more intensive survey. And much valuable co-operation has been given by the Northeastern Forest Experiment Station, the U. S. Forest Service unit conducting the survey.

Further inquiry revealed that the New York State College of Forestry

had worked in the field of forest surveys, using aerial photographs in conducting land-use studies in Broome County and in the Richfield Springs and Van Hornesville School districts. The information then being developed in these studies was carefully examined and found to provide the same information needed for the appraisal of forest lands for assessment purposes, and the College, with its experienced personnel and facilities, was invited by the Board to undertake the work of determining in a two-year period the forest conditions on the six million-acre area. The College accepted, and a special appropriation of $46,000 was granted by the Legislature for the first year of work.

FIELD work undertaken by the College began in June 1950. The project is now in full swing. During the field season that ended in November, about two and one-half million acres were covered; all fire towers were visited, roads traveled, trails and cruise lines walked, and some observations were made from the air in a Conservation Department plane to complete the necessary reconnaissance work. Nearly 400 sample plots distributed over the area were measured. Information on volume of trees by species, growth rates, amounts of defect and mortality, and growing conditions was secured to be used in the interpretation of the aerial photographs.

When this work is completed, a highly accurate record will be available of the factors which influence values of woodlands. Kinds of trees, their size, the volume of board feet and cords per acre, the quality of the soil and other factors influencing growth, and the location of the timber in respect to roads will have been determined. From this information forest classifications will be established.

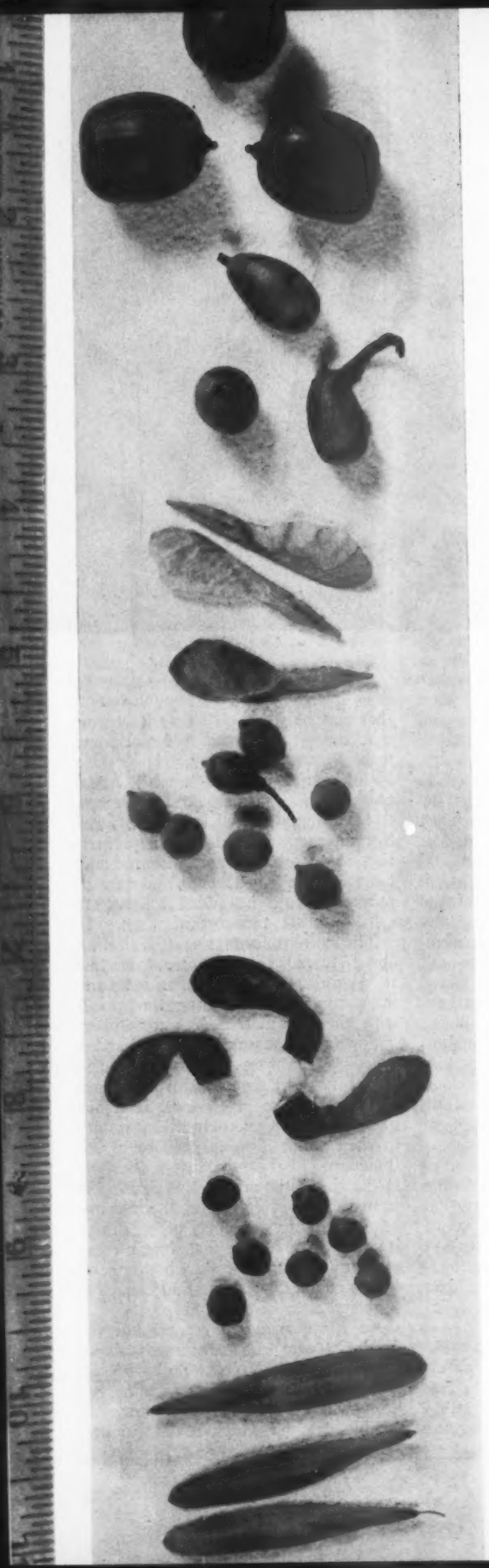
The State Board of Equalization and Assessment, through its foresters, is undertaking the interpretation of the data secured by the College, the analysis of assessment rolls, the determining of timber and land values and property ownerships. Records of recent sales are yielding information on land values. Timber values are being determined through sales information and records provided by lumber and pulp companies and by timberland owners, all of whom are co-operating in a splendid manner. Ownership information is being secured from assessment rolls, landowners and land survey records. Base maps for recording ownership (copied from Conservation Department maps) are used to record the ownership data. The information developed by the Board is being integrated with the forest condition data secured by the College of Forestry to establish forestland valuation.

The results of this work will provide the assessors with suggested valuations, together with maps and other useful materials so far as it is possible to develop them within the limits of funds and time available.

Indirectly, the survey is pointing up those places in the assessment system that may be weak. To date it appears that the greatest need is for accurate maps to assist the assessors in locating all properties in their towns. Aerial photographs can provide such maps, and although special equipment and techniques are needed in their preparation that this survey cannot provide, in some cases it is believed that enough property would be added to the tax rolls to offset the cost of maps.

The current forest survey is costing about three cents an acre. If this survey did nothing more than serve the sole purpose of providing the Board with the information it needs in the approving of an expenditure of about $1,500,000 a year in taxes on the Forest Preserve lands, it would be a very worth-while investment. If it did nothing more than help the assessors in their work, it would still be a reasonable cost. Fortunately, in addition to the above, the information developed from the survey can be used for many other purposes. Among other things it will provide for the first time, a comprehensive picture of the condition of forests in the two roughest and heaviest timbered areas of the State.

All those agencies, groups and individuals who are concerned about conservation in New York—be it forests, soils, wildlife, water, or recreation—will have available a source of reliable data on which to base policy and action.



HOW TO DO IT (12):

RAISING HARDWOODS FROM SEED

THE State's forest tree nurseries produce seedlings for planting only on non-agricultural lands. Attempts to plant hardwoods on such lands have met with nearly complete failure—which is why the nurseries concentrate on conifers. Nevertheless, considerable interest has been demonstrated in raising hardwood planting stock from seed, and in case any of our readers are interested in such a project we offer some information on how it can be accomplished.

In planting hardwood seed, soil preparation should be much the same as for vegetable or flower gardens. Hardwood seeds in general are sown as soon as ripe from the tree, although in some cases storage is possible. The seed can be broadcast and covered with garden soil, or (usually preferable) planted in rows that can be more easily cultivated and weeded during the growing season. Most hardwood species can be transplanted from the seed beds after one growing season. It is best to remove only the larger stock, leaving the remaining seedlings in the beds and giving them the advantage of wider spacing. The treatment of individual species, according to the requirements of each, is as follows:

Red Oak: Acorns from this species mature in the fall, at which time they can be picked up and sown. A trench three to four inches in depth should be prepared, and the acorns placed about three inches apart and covered with the soil removed in digging the trench. No further treatment is necessary, unless a heavy local population of field mice or squirrels exists, in which case a wire screen should be laid over the planted area. In heavy soil the bed should be covered with eight to 12 inches of leaves—which prevent the heaving of the acorns by frost. This mulch should be removed early in the spring.

White Oak: Acorns of this species germinate very readily. Planting procedure is essentially the same as for red oak, but the leaf mulch should be even heavier to prevent freezing.

Sugar Maple: The seeds mature in the fall and for best results should be planted at that time. The seeds should be broadcast over a prepared flat surface and covered with one inch of soil. A heavy mulch of leaves should be placed on top of the bed.

Red and Silver Maple: Both of these species produce seed in early summer which can be sown at that time without treatment.

White Ash: A fall seed producer. Seeds should be sown before the middle of October either in rows or broadcast, and in either case should be covered with two inches of dirt. Well dried white ash seed will keep from one to two years, and may be sown in the spring after five to six months of stratification (light soaking) in peat moss.

Black Cherry: The seed of this species has a fleshy pulp on the outside which must be removed by soaking and rubbing before planting. The seed is best sown in early September, either broadcast or in drills, and should be covered to a depth of about one inch.

Walnut and Hickory: Nuts of these two species can be sown deeply in drills when ripe in the fall. Screening from rodents is usually necessary, and a mulch to prevent heaving from the soil is advisable.

With regard to all hardwoods, it's well to repeat that their planting on poor land has in general been unsuccessful. Nevertheless, reasonably good results can be expected on soil which is suitable for farm or garden crops. In any case, young hardwoods are sensitive to competing vegetation, so that cultivation is usually necessary for at least two or three years after planting in the field.

—E. J. ELIASON, *Asst. Supt. of Tree Nurseries*

Top to bottom: red oak, white oak, box elder, basswood, sugar maple, black cherry, white ash

FOR FENCE POSTS RED PINE

A GOODLY portion of New York State's agriculture is devoted to dairy farming. Confinement of dairy cows and other farm animals to where they belong requires hundreds of miles of fences and literally millions of fence posts—usually a post for every 12 to 14 feet of fence.

Since nearly all fence posts are made of wood, dairy farming and woodlot forestry are closely related. Fence building and fence repair is the dairy farmer's annual spring chore. The biggest part of this chore is replacing wooden posts that have rotted away because of natural causes. This job could be reduced to a minimum if fence posts could be obtained that would last 20 years or more. Only four species of trees are grown in New York which produce wood that can be expected to meet this 20-year requirement, when placed, untreated, in the soil as fence posts. These species are black locust, red cedar, mulberry and osage orange. None of the four is plentiful except locally, nor can any be easily grown for reforestation. Consequently, most farmers are compelled to use less durable woods. But these woods can be made to meet the 20-year requirement by chemical treatment before they are placed in the soil. Various kinds of wood-destroying fungi are the villians that rot fence posts and other wood products. Fungi grow most vigorously and attack wood most rapidly under conditions where both air and moisture are present all or most of the time, and every farmer knows that fence posts rot and fail at the ground line where conditions are ideal for decay.

A number of chemicals toxic to wood-rotting fungi are used commercially in wood preservatives. One that has shown considerable promise during the past several years is *pentachlorophenol.* Don't try to pronounce it. It's another jawbreaker the chemists thought up, and from here on we will just call it "penta." Penta is manufactured by several industrial concerns and is sold under various trade names. It can be obtained at most of the larger farm supply stores, and is comparatively cheap and easily applied.

A great many farmers have forest plantations 15 to 20 years of age. This is the ideal age to start pruning and thinning work. It is also the proper age to harvest round fence posts from trees that are removed in the thinning operation. Almost any of the species of pine, and some of the hardwoods, are suitable for the penta chemical treatment. However, Conservation Department planting records show that more red pine than any other species has been planted by the landowners of New York, and this wood is also one of the best for preservative treatment. It is also light and comparatively easy to handle.

One of the Department District Foresters treated about 1,900 red pine fence posts in 1949, on an experimental basis, to see how it was done and what the cost of a treated red pine post was likely to be. Here, briefly, is how it was done:

Since posts to be treated by the penta method must be thoroughly seasoned, it is necessary to plan the work several months ahead. A State red pine plantation was thinned in May and June, and the trees removed were peeled and cut into six-foot lengths. The average 20-year-old red pine will produce one to three six-foot posts. The bark will peel off fairly easily in May and June by using a peeling spud, but red pine cut during the rest of the year must be peeled with a draw shave.

After three or more months seasoning the posts are ready for soaking in the penta solution. No heat is required. (This is an important advantage of penta over creosote.) A leak-proof vat or tank is necessary. The cheapest and easiest treating tank to use is a 55-gallon oil drum with one end cut out, but the capacity is limited to 15 or 20 posts per batch and the posts must be reversed, end for end, to obtain full length treatment, thereby doubling the treating time. Larger treating tanks may be constructed of metal or concrete.

The recommended treating solution is composed of five per cent penta preservative. The Forester used 10-1 penta concentrate, although it may be purchased in a variety of strengths. Ten gallons of fuel oil were mixed with each gallon of concentrate to obtain the recommended five per cent solution. Each batch of posts was anchored in the vat to prevent floating, covered with the solution, and soaked for a period of eight to 24 hours. An eight-hour period seems ample for thoroughly seasoned posts.

Cost per post, including cutting, peeling, sharpening, transportation, treating solution and labor at treating plant, came to 55 cents. Labor was unskilled.

It is probable that these costs can be reduced 10 to 15 cents per post with more experience and increased efficiency. This cost may seem high, but is not unreasonable for a 20-year post. Six-foot, steel posts are presently selling for about 80¢ each.

The conclusion from this and other experimental work in this field would seem to indicate that "it's cheaper to treat 'em than to replace 'em."

—J. D. KENNEDY,
District Forester, Cortland

Ken Jenkins'

Forest management

Fencing

MANY hilly farms in Wyoming County have washed down the hill since they lit the first gas lamps on the streets of Wyoming Village. And unless conservation practices are applied to others pretty soon they too will take the same downhill ride. Most town folks can't remember when these lamps were first lit, although they all agree that they've been burning night and day for a long time.

But there is one farm up in the hills southwest of the village that has sustained the ravages of wind and rain during its many years of cultivation, and yet will be yielding a comfortable living for its owner for a long time to come. Grandpa Jenkins settled on this farm back in the 1870's, and there has been a Jenkins in command ever since. Ken is at the helm today, and his son, Bill, is attending Morrisville Agricultural School, preparing himself for the day when he takes over as the fourth generation.

The Jenkins family's many years of success and prosperity on this farm can be attributed to their deep-rooted love for the land, to their knowledge of its capabilities, limitations and proper use, and also to their constant determination to do something new and better. All of which fits nicely into the program of conservation farming that is right now producing greater yields and a better farm living for the Jenkins family.

When Ken was just a small boy, he often took his father's shotgun from the nail in the back shed and stalked up through the orchard to his favorite rabbit hunting grounds over the hill, winding up in late afternoon in the big woods to get a shot at a gray squirrel. Like most farm boys, he always operated a trap line in the fall and frequently enjoyed dismissal from school because of an offensive, skunkish smell that obviously came from his clothing. He says now that it was early escapades like these that kindled his interest in conservation, an interest which later expanded to include the broader aspects of conservation and which impelled him to practice it on his own farm. Starting with wildlife, he soon learned that wildlife management practices tied in with those of forestry, woodlot management, soil and water conservation, and proper land use. He realized that the problem of fitting all of these practices into a workable program was perplexing—but far from insolvable. And he promptly set out to find the answers.

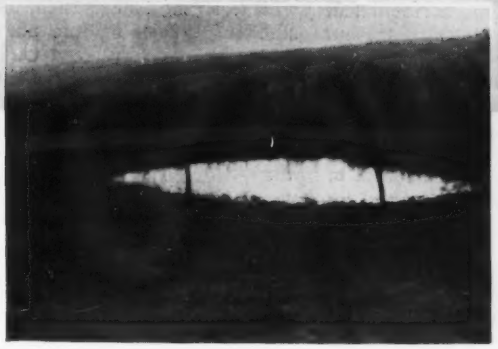
Ken sought the assistance of various government agencies, and during the winter of 1934 he launched a complete conservation program for his farm under the supervision and assistance of the Civilian Conservation Corps. This program included pasture improvement, diversion and drainage ditch construction, contour strip cropping, woodlot improvement, reforestation, wildlife border plantings around woodlots and plantations, travel lane plantings for wildlife, windbreak plantings, and farm pond construction.

THE results of this program can be seen everywhere on the farm today. Contour strips, diversion ditches and improved pastures have anchored the top soil and increased its productivity. Conifer and locust plantations cover the steep slopes that were formerly pastured and eroding away. All woodlots are fenced to protect them from the harmful effects of grazing. Shrub plantings border the woodlots and plantations, providing food and cover for wildlife; they also extend along the contours from woodlot to woodlot to provide travel lanes for wildlife. One large farm pond provides water for the house and barn, water for fire protection, good fishing and habitat for waterfowl and other forms of wildlife. Several smaller ponds located about the farm provide additional water for livestock and a place for Ken to carry on his hobby of growing water lilies. Windbreak plantings bordering cropland prevent crop damage

Farm

Corner for game

Farm marsh



Small farm pond

and erosion from the wind, and serve also as additional cover for wildlife.

The most important consideration is that these practices are really paying off. When asked if he really thought that the program had been worth the effort, Ken replied: "Absolutely !! I've more than doubled my yields since I started the program and they're getting better all the time. I'm now milking 32 cows and carry 70 head all of the time. Under the pasture improvement program, it now takes less acreage to carry more cows, so I still have plenty of land for my cash crops—peas, sweet corn, dry beans and apples."

In the course of conversation I also learned that the program was paying off in several other ways that contribute to the farm income and to that intangible personal satisfaction that is so important to a happy farm living. Take for instance his large farm pond, approximately four acres in area: during the three-week period prior to my visit to the farm, the hired man had caught an average of 14 bullheads per day, and the proof was visible in his deep freeze. With current meat prices, these fish will go a long way in defraying the food bill.

The pond, incidentally, is open to public fishing. And being a sportsman himself, Ken gets a nice warm feeling when he looks out on a Sunday afternoon and sees ten or fifteen anglers lined up on the dike trying their luck.

The conifer plantations are paying their way from early thinnings sold for Christmas trees; in a few years the locust plantations will be furnishing all of the highest grade fence posts that he will need for his farm, and the balance can be sold for a good price. But the wildlife plantings have pleased Ken perhaps more than anything, and he considers that they have contributed greatly to the good hunting he now enjoys right on his own farm. (He feels that they also draw woodchucks away from the cropland.)

"How do you like contour farming?" I asked. "Is it more difficult to work strips?"

He wasn't slow to reply.

"I like it fine," he said. Pointing to a contoured field, he added: "Those strips make long belts, and one round trip with the drill makes an acre. That's better than I could do with the old, square-shaped fields. The hardest thing about strip-cropping is to make up your mind to do it for the first time; after you've done it, you'll never go back to the old fashioned way."

In spite of all these improvements and changes, Ken's interests in conservation have not become static. His latest project is a muskrat and waterfowl marsh being built in co-operation with the Wyoming County Soil Conservation District and the New York State Conservation Department (Pittman-Robertson Project 48-D). Eventually he plans on living multiflora rose fence taking the place of most of his wire fence, the idea being to reduce maintenance costs and provide additional cover and food for wildlife. He has recently signed up under the New York State Forest Practice Act to obtain technical assistance in the management of his woodlots and advice on future cuttings and sales of timber. He is developing what he calls "game islands" by fencing off small areas in the middle of his improved pastures and allowing them to come up to brush for small game. The only expense involved is the fencing of these islands, and judging by the results already obtained that expense is justified.

These are only a few of Ken Jenkins' latest ideas and projects now in the mill. With regard to the future, he has this to say: "New ideas, better systems, and new projects are always coming up; conservation farming is only just beginning on this place."

—Donald J. Spittler,
Assistant Game Research Investigator

ULSTER COUNTY

by **CARLTON B. KING**

Map by **FRED EVERETT**

WHEN I was asked to write something about Ulster County for THE CONSERVATIONIST my first thought was to give the county of which I am a proud resident a grand buildup. I soon discovered that that had already been done—by the Ulster County Publicity Committee in Kingston and by 16 different Chambers of Commerce. So I had to look for another angle, and it seems that all I have space for is a general outline of the most significant features of the county.

Probably most important are the woods and forests which cover about 65 per cent of our 1,200 square miles of mountains and valleys. The Catskills rise up through the northern half of our territory while the smaller, but still imposing Shawangunk range splits the southern half. Our highest mountain is Slide, 4,204 feet.

The forested mountains and valleys in our county are important for at least four good reasons: (1) As a source of water supply; (2) as a drawing card for summer vacationists; (3) for the hunting and fishing which they provide; and (4) for the forest products used locally and shipped all over the State.

During the past year Ulster County as a source of water supply for the nearby metropolitan area has attracted increasing attention. Dr. Howell, the City's rainmaker, operates around here. Years ago the New York City Board of Water Supply, in the development of the Ashokan Reservoir, provided one of the earliest concrete examples of multiple use in Conservation. Disliked and fought as was this project in its early stages, the millions of planted evergreens surrounding the reservoir have become a game refuge; floods along the Esopus have become very rare; and to anyone who has driven along the 32 miles of road around the reservoir on a hot summer day it's apparent that the protected forests and waters have a definite revitalizing effect.

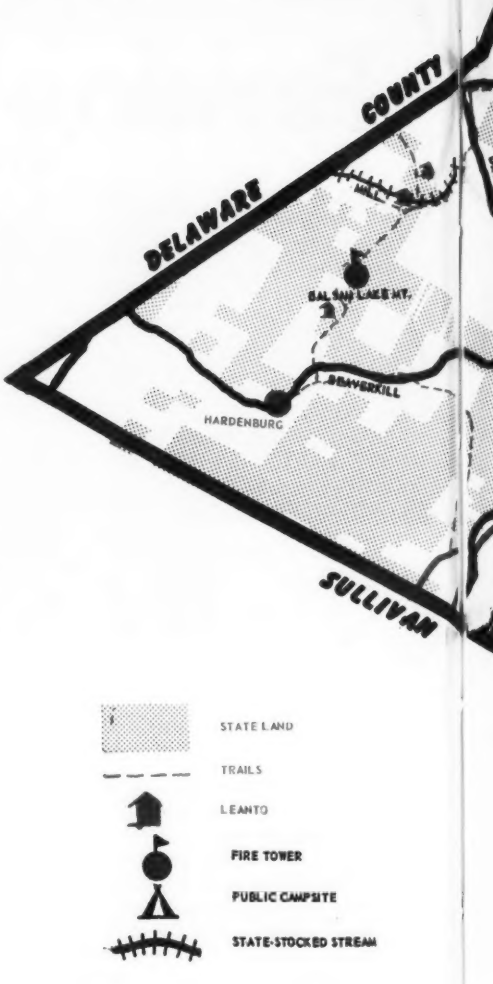
With regard to the resort facilities in the county, we residents appreciate that week end and vacation visitors contribute materially to our economic welfare. This includes the hunters and fishermen who flock in from the metropolitan areas, and from other parts of the State, when our trout are biting or our game is in season. But couldn't our visitors take a little more active interest in our welfare? Couldn't visiting hunters and fishermen, for example, join the local fish and game club in their favorite area? The writer's own club, the Saugerties Fish and Game Club, has used the dues paid by such members only to improve hunting and fishing and of course, we could use a lot more. I'm sure that goes for other clubs too.

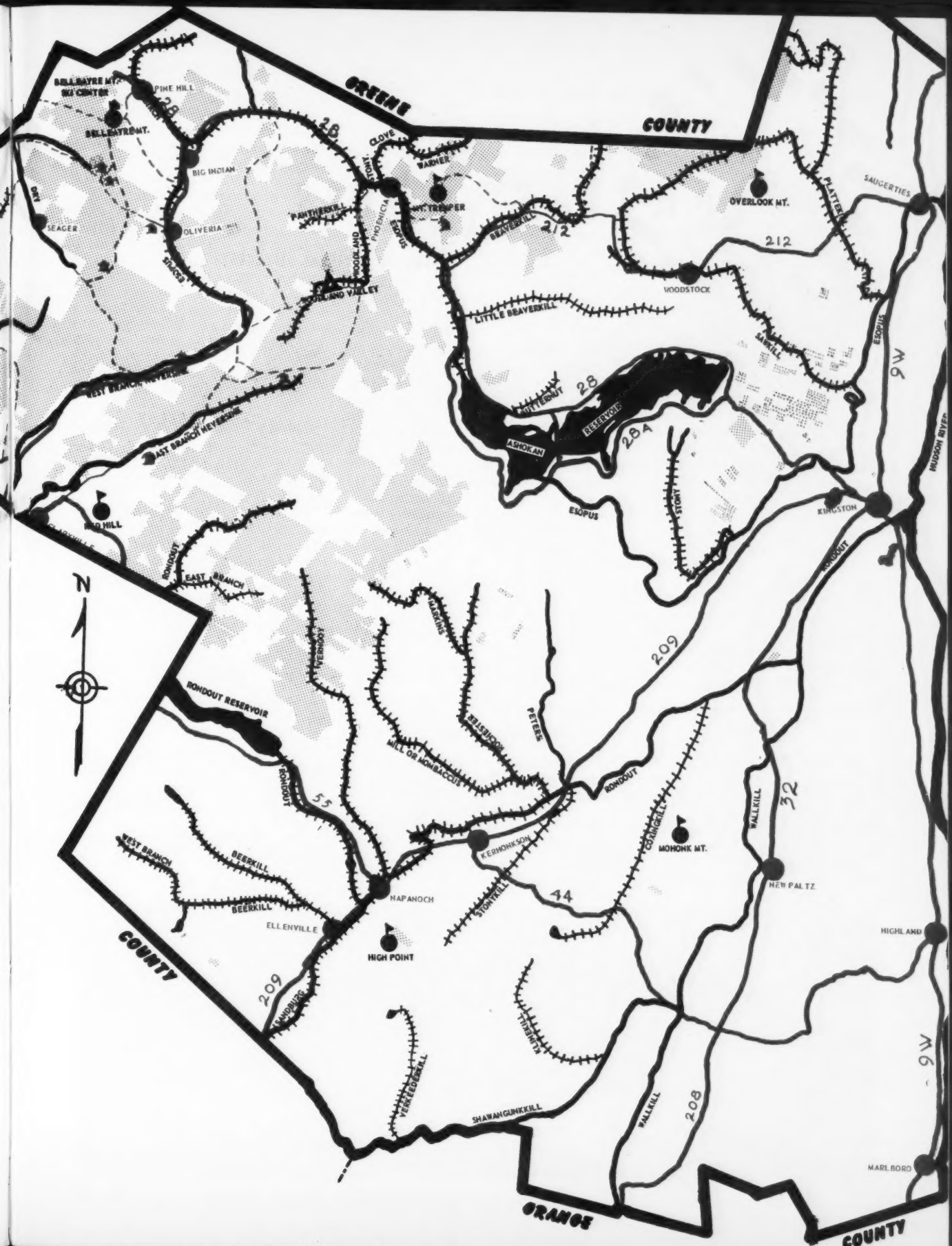
The Ulster County Board of Supervisors several years ago voted to assist county sportsmen by appropriating $1,000 each year for the improvement of hunting and fishing. The county sportsmen's federation of 26 clubs, one of the oldest in the State, voted to use these funds in rotation, the first year for pheasants, the second for fish, and the third for rabbits. In addition to what individual clubs, not to mention the Conservation Department, have done, the total effort toward the improvement of hunting and fishing has been very substantial, and we feel it has paid off.

As to the physical status of the county with regard to Conservation, it must be admitted that things are not as they should be. The Fish and Game Managers who attend our sportsmen's meetings take a lot of punishment from sportsmen whose only interest seems to be their own pet stream or cover. "Why doesn't the Department stock such and such a stream with brook trout any more?" The answer: that stream is no longer suitable for brook trout, it is too warm. Why is it too warm? Because Man has cut off, without making adequate provision for replacement, the tree cover which originally lined not only the banks of the stream, but more important the mountain sides from which the stream draws its life. Then too, every time someone buys a little campsite it usually becomes a permanent clearing instead of a wooded camp, and the ability of the exposed soil to hold water is that much less.

Yet I shouldn't paint too gloomy a picture. Those who have traveled in Ulster County in May will never forget the apple blossoms along the Hudson Valley south of Kingston (the County seat) and west along the Wallkill Valley to New Paltz and Gardiner. Ulster, incidentally, is one of the three largest fruit producing counties in New York. I believe it also produces more sweet corn than any other county; in the Rondout Valley alone close to 5,000 acres are devoted to this crop. Everything considered, our wooded hills and mountains, and our farms in the lowlands watered from those woods and hills, add up to a very pretty picture any time of the year.

MOST of us are anxious to keep the county that way, and we appreciate that Conservation plays an extremely important part in realizing that ambition. We want to have our cake and eat it too. And we'd like to leave not just crumbs, but the whole cake for our children's children, and perhaps even restore some of the icing that was skimmed off before our time.




GREENE COUNTY
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BIG INDIAN
SEAGER
OLIVERIA
STURGES
PANTHER KL
PHOENICIA
ESOPUS
CLOVE CREEK
WARNER
MT. TREMPER
BEAVERKILL
OVERLOOK MT.
SAUGERTIES
PLATTEKILL
212
WOODSTOCK
LITTLE BEAVERKILL
SAWKILL
ESOPUS
9W
HUDSON RIVER
WEST BRANCH NEVERSINK
EAST BRANCH NEVERSINK
BIG HILL
RONDOUT
EAST BRANCH
RONDOUT RESERVOIR
VERNOOY
HASKINS
SCHERERVILLE
PETERS
MILL OR MONRADCUTT
RONDOUT
55
KERHONKSON
STONY HILL
CORNERS
MOHONK MT.
WALLKILL
32
NEW PALTZ
44
NAPANOCH
WEST BRANCH
BEERKILL
BEERKILL
ELLENVILLE
HIGH POINT
209
SANDBURG
HIGHLAND
SHAWANGUNK KILL
YERKES BROOK
WALLKILL
208
MARLBORO
ORANGE COUNTY
N
28
28A
ASHOKAN
RESERVOIR
KINGSTON

Scatter Shots

. . . NOTES OF GENERAL INTEREST

DEFINITIONS

We are indebted to Milton C. James, Assistant Director of the U. S. Fish and Wildlife Service, for an excellent definition of a *Fishery Administrator*—which is something we've been looking for these many years. (For the definition, not the Administrator.) Mr. James came up with it at a recent meeting of the Atlantic States Marine Fisheries Commission:

"A *Fishery Administrator* is a citizen who is expected to start with an indefinite, indeterminate number of unknown, variable natural factors, including the factors of human nature, and without the benefit of any recognizable formula or recipe, add these elements together to produce a constant, stable, unfailing, maximum supply of catchable, marketable or profitable fish or shellfish."

Inspired by this noble summation, we would like to offer a definition of our own. Not to try to compete with Mr. James, but just to clarify something. In case you don't know it, this is what a *District Game Manager* is:

"A *District Game Manager* is a sad sack, who might as well be an alien, whose legitimacy is frequently questioned, who works for a bunch of bureaucrats in Albany, who has a rubber chin on which to take it when the guy next door doesn't get his limit, who knows far less about game and game management than the guy next door, who is a theorist and a crackpot, who certainly ought to be able to pull rabbits out of a hat when the guy next door cuts down or burns the only other place that rabbits might come out of, who really ought to have something done about him, but quick."

SADDEST STORY

District Game Protector Bob Vickers accepted an invitation to go deer hunting in Vermont this fall. He should have stood in bed.

Vickers was about to begin a drive to other members of the party when he discovered that he'd left his ammunition under his bunk. Rather than confess, he roared several cross-country miles back to camp, grabbed up a box of shells, and roared back to begin the drive. At this point two does and a buck sauntered across in front of him. But Vickers had grabbed the wrong ammunition; it wouldn't fit his gun.

NISKAYUNA STRIPED BASS

The bass shown below was taken November 3 by a Department Salvage Crew in the Niskayuna Lake section of the Mohawk River-Barge Canal. This is above Lock 7 of the Canal and about 140 feet above Hudson River level.

Striped bass mature in the sea but ascend rivers, including the Hudson, to spawn. The immature fish spend a few years in fresh water before migrating seaward to complete their life cycle.

Apparently there are only two ways this fish could have reached his comparatively elevated position: by hatching there (following an unusually extended nuptial pilgrimage by his father and mother) or by negotiating the locks himself. A rare occurrence in either case, for we have only one previous authentic record of a striper from the Mohawk.

This specimen was an immature male, 13⅞ inches in length and in his third year of life.

THE MAD ARCHER

Many of New York's fish and game violators are very ingenious fellows, but we have in hand a report from Michigan's Conservation Department about a man that makes our sharpest operator a dull tool by comparison.

The character in question (from Detroit) headed into Michigan's woods with a bow and arrow, hoping to bag a deer. He didn't. But on the way in he nearly killed one with his car, and in reflecting upon this experience later on he apparently concluded that the automobile and the arrow, in combination, suggested the perfect machine for deer destruction. So he strapped a long, sharp pole on his car and began charging up and down the back roads.

They nabbed him.

FISH, WEATHER AND PEOPLE

Under the above title, the Forest Preserve District of Cook County, Illinois, recently released a most interesting bulletin. The bulletin is concerned with the fishing history of a small lake on which remarkably complete records have been kept for many years, and although Illinois waters pose fish and fishing problems different in many ways from ours, at least parts of the bulletin will be of interest to our readers:

"Rinaker Lake, a 14-acre impoundment near Carlinville, Illinois—about midway between Springfield and St. Louis—has been used for almost 50 years by a club of local people to furnish some of the best year-round fishing in the state. From 1932 to 1943, a careful day-to-day record was kept of each angler's catch, to serve as a guide for the management of the lake. During this 12-year period, a total of over 15,000 pounds of hook-and-line fish was taken. This amounted to 3¼ pounds per fisherman per trip — over twice as good as the average success in other waters of Illinois. The catch was made up almost exclusively of four kinds: largemouth black bass, white crappies, bluegills and black bullheads. Although each of these kinds, in certain years, made up a much more important part of the total catch than in other years, the total average catch per fisherman's trip was about the same from year to year.

"These records and the records of the local weather station were used to test some of the beliefs that weather has a lot to do with the best time to fish. One of the oldest ideas is that fish bite better during and following rains. There was a moderate increase in the average catch on the 244 days when over a half inch of rain fell, but there was little effect during the days that followed except that bass bit almost twice as well when the water cleared up, two or three weeks later. Whether it was sunshiny or cloudy made little difference. Neither did wind direction, possibly because the lake was so small that there could be little wave action.

"Some fishermen claim that fish bite better on days with a high barometric pressure, and others that a rising barometer is best. This was tested in detail, using U.S. Weather Bureau records, but there was no evidence of any effect. Incidentally, fish rising or sinking through a few inches of water undergo greater pressure changes than the most extreme changes shown by the barometer during the course of a year. Both bluegills and crappies seemed to bite a little better in the light of the moon than in the dark of the moon but the average difference was only a few per cent. Further, confirmed anglers fishing one or more times each week had no better luck than persons who fished only a few times a year. During the entire twelve years, men averaged 3.25 pounds per day, while the women averaged 3.22 pounds.

"Of course, the men say they hooked a lot of big ones that got away."

A TAIL, BUT WHOSE?

The tail shown in the photograph at right was sent to us by John C. Yost, of Herkimer. We took one look and sent it on to Prof. W. J. Hamilton, Jr. at Cornell, who wrote us as follows:

Dear Sir: My first glimpse of the squirrel tail suggested duplicity on the part of you and your colleagues. After close scrutiny with ultra violet rays, a probing examination under the binoc and sundry other investigations, I conclude that "mebbe you got something".

Injury of one of the caudal vertebraes presumably caused the peculiar hair growth. The normal colored basal half is all relatively new fur, suggesting that the entire tail had lost a large share of hair. This is the typical mosaic pattern of the gray squirrel. The distal half has a similar pattern, only the color varying from the ordinary pattern. Such "freaks" are sure interesting and excite a lot of attention.

W. J. Hamilton, Jr.,
Professor of Zoology,
Cornell University

LEAN-TOS

An editorial in the Gloversville *Leader-Republican* gives credit to the Conservation Department for the happy ending to the adventure of Richard Neadle of Esperance, the youth lost for four days in the Hamilton County wilderness west of the Sacandaga River. The editorial states: "Richard Neadle can thank God for the Conservation Department and its policy of building lean-tos in the Adirondacks."

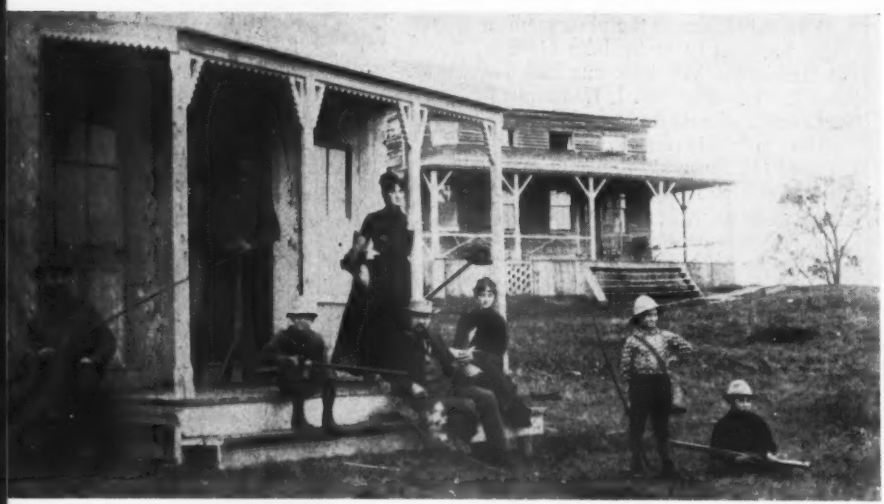
State-constructed Adirondack lean-tos—185 of them—are located on marked and maintained foot trails in the Forest Preserve, and are primarily for hikers who find them convenient overnight shelters on long trips into the woods. It obviates the necessity of packing a tent.

The lean-to that saved Neadle's life is located at Silver Lake on the 130-mile long Northville-Lake Placid trail which traverses the wild central area of the Adirondack Forest Preserve. This trail (an inspiration of the late William G. Howard) is marked by blue Department trail markers nailed to trees. It is maintained by Forest Rangers through whose territory the trail runs, all the way from Benson (near Northville) to Lake Placid. There are 22 lean-tos on this particular trail which gives access to such wild spots as Spruce Lake, West Canada Lake, Cedar Lake, Tirrell Pond, Cold River and Moose Lake.

(Just as a reminder, trails marked by blue discs in general run north and south; red disc trails run east and west and to Fire Observation Towers; yellow disc trails run northeast and southwest or serve as short connecting trails.)

Woodswise hikers always leave a clean lean-to and a supply of dry firewood for the next comer, who may arrive in a downpour or a blizzard. It is also the custom to leave a small supply of non-perishable foods such as oatmeal, rice, tea balls, etc., in a covered can or pot. And there is usually a glass jar for matches which is replenished by every hiker passing through.

Treat the lean-tos with respect. One of them may save your life someday.



Summer "sports" at Piseco Lake, about 1886

NATIONAL PHEASANT CHAMPION

The 25th renewal of the National Pheasant Championship Field Trial Club's event drew a field of 24 pointers and four English setters over the Three Rivers Game Management Area of the Conservation Department near Baldwinsville, October 16 and 17.

The weatherman furnished two of the best possible autumn days. The fine natural conditions of the Area, which promises to become a pheasant trial center equal to the best, met with the highest favor of the officials. They were particularly impressed by what had been accomplished in developing a section of abandoned central New York farmland into a model for other states.

In the trials, an unbeatable performance gained Kilsyth Brownie's Son the title of 1950 National Pheasant Champion. The white and liver pointer, a first year all-age owned by Gerald M. Livingston of New York City and handled by George A. Evans, Jr., duplicated the feat of his celebrated sire, Shore's Brownie Doone, who won the crown in 1948. No runner-up was named.

The Championship was inaugurated a quarter of a century ago, with bird dog fans in western New York and Pennsylvania participating, but in 1930 the National Pheasant Championship Field Trial Club took over direction from a group of pheasant trial clubs. Since 1934, when the American Field Pheasant Dog Futurity was inaugurated, the two events have been run together, the Championship this season following the Futurity. Kilsyth Dixie Sam, also a Livingston-owned dog and also handled by Evans, won the Futurity.

WOUNDED DEER

Memo to the Editor: When Jack Tanck and I wrote that article on Pursuit of Wounded Deer in the last issue, George Lesser of Johnstown, Franklin J. Passer of Rome, and Gerald Kenwell of Inlet all helped us a great deal. We based a lot of that article on their knowledge and experiences. Would it be possible to give credit where credit is due in the next issue of THE CONSERVATIONIST?

Also, you might like to use part of Passer's letter to me, a copy of which is attached. —C. W. SEVERINGHAUS

From Mr. Passer's letter: The terrain with which I am most familiar is comparatively flat—swamp or low timber land. In the majority of about 18 cases in which I have tracked down wounded deer, the deer followed a rather uneven circle, returning eventually to almost the same spot where the animal was jumped. Only once have I actually seen a wounded deer take to water, although I know of several authentic cases in which they did so.

It has always appeared to me that a wounded deer follows the line of least resistance for a short way, in order to reach what his instinct says is a safe hiding spot. This may be a mile or two distant. But upon following him, his next action would be to try to shake the tracker—through thick brush, swamp, water, zig-zagging, etc. But eventually he returns, if he has the strength, to the vicinity where he was first jumped.

In mountain country, as Gerald Kenwell pointed out to us, this may be different; he seldom knew of a deer returning to the vicinity where jumped, but rather the animal would lead way off, for miles. A day or two later, however, he would sometimes be seen back in his own territory again—which would indicate that in either type of terrain the wounded animal's eventual course may not vary too much, if followed long enough.

A GOOD SEASON

When the old year goes out December 31, a good many citizens will have in their minds some great hunting memories, and in their mouths the pleasant taste of game. For 1950 was a generous year.

It's too early, of course, to give facts and figures on the actual harvest; we will try to do that in our next issue. But preliminary reports on big game indicate a bumper crop of both deer and bear, the deer—like the bear—fat as corn-fed porkers.

Small game too was in good supply. Squirrels suddenly appeared, to clean out dens that hadn't been used for years. Prospects for beagling looked good, with hare populations higher than ever before, and the cottontail showing a promising, and in many localities an amazing increase. Grouse were unusually abundant, and only woodcock were hard to find, possibly because unusual weather altered the normal flight patterns. This factor slowed down duck migrations too, although the puddle population was in very good shape.

Several reasons are suggested for the bountiful 1950 game supplies. Undoubtedly a good crop of food was partially responsible. In fact—and paradoxically—there was so much food that grouse were often hard to locate, being scattered somewhere between apples and mast, with plenty of both underfoot, especially beechnuts which littered the ground this year. Also contributing to the good hunting were two easy winters in a row combined with two good breeding and nesting seasons in succession. And all along the line better management, improved cover, better protection and good sportsmanship apparently helped to improve the picture.

Of course this report will strike a sour note with some, who for one reason or another didn't connect, but even the gripes we've heard have taken on a less querulous tone. We're still waiting to hear from one gent who stopped in last year, asserting he had hunted the deep woods for eight years and hadn't even seen a deer. In fact all he had seen in that length of time were a few chipmunks and one seagull winging its way off through the brush. So far he hasn't been in this year. Maybe he had a lucky ninth inning—or got his bifocals repaired.

All in all, it seems that the hunting was: for most—better than it has been for more than a decade; for many—they can't remember a year when game of all kinds seemed to be more abundant or in better condition.

For your Information

WHAT NEXT?

What with all the "modern improvements" in hunting equipment, plus greater hunting pressure, better transportation, etc.—we sometimes wonder how any game manages to survive the season. This feeling was not relieved any when we came across a recent article in the Richmond (Virginia) Times-Dispatch.

It seems that the latest refinement in quail hunting down Virginia way is a dog name of Ranger Joe, owned and operated by Mr. Irving Taylor of Deltaville. Owned by him, anyway; the dog operates itself. All Mr. Taylor has to do is put Ranger Joe (an English setter) in the back of his pick-up truck, drive into some likely looking quail country, and then settle down for a snooze in the front seat while the dog goes to work. If the dog finds any birds he backs off quietly and returns to the truck to get Mr. Taylor; if he doesn't find any in spite of a thorough canvass, he jumps into the back of the truck and they move on to the next place.

As far as we know, Ranger Joe has never tried to work this sort of thing on ruffed grouse. And we take some comfort in the thought that if he did, our grouse wouldn't stand (or sit) for it.

VITAL STATISTICS ON BEAVER

Recent research by Art Cook, Fur Resource Research Investigator of the Department, has produced some interesting facts about beaver age. Based on an x-ray technique and study of over 4,000 beaver skulls collected in the field, the research has shown that (1) size and weight are no indication of the age of beaver; (2) that there is no correlation between the width of the tail and the age of beaver; (3) that to determine the approximate age of beaver you must use the skull and the stage of ossification (bone formation) of the tips of the femur; (4) that by this method of aging, beaver can be classified readily into the following age classes: less than one year, one year, adults (three years or over).

Four known-age beaver kits reared at the Delmar Wildlife Research Laboratory had tail widths of 5¼ inches at 12 months of age and now, at 15 months, have tail widths of 6¼ inches. Thus width of the tail is hardly a reliable indication of beaver age. Of course these beaver have restricted exercise and plenty of food before them, but this illustrates the fact that nutrition plays a big role in the body development of the beaver just as it does in humans.

So who cares how old a beaver is? Well, there are a great many who do. Information as to age composition of beaver population is fundamental to proper beaver management just as it is with deer (see page 6), salmon (see page 34), and many other species.

Adirondack coyote taken this past fall, and perhaps a record for weight (figures not available). Marginal terrain, with old road at right, is good coyote trapping territory. ***See page 12***

CORRESPONDENCE

Dear Sir: Enclosed is a copy of a letter I received from Assemblyman (name withheld, of course) in reply to a letter that I sent him asking for the whereabouts of the Kirscht farm, where they are suffering some deer damage.

I thought you would be interested in the reply, and perhaps might be able to send me a pair of water wings so that I can call on Mr. Kirscht.

—JOHN NEMES,
District Game Manager

Dear Mr. Nemes: In reply to your letter of September 21st concerning the location of the Kirscht farm, I wish to advise as follows:—Proceed northerly on Route 38 to the Mosquito Point Bridge; *turn left in middle of bridge and go approximately ½ mile*, the Kirscht farm being the first farm house on the left side of the road.

ASSEMBLYMAN X

Nemes must have carried out instructions to a T. He has not been seen or heard of in a number of days.

ADIRONDACK DEER

A total of 806 bucks came through checking stations near Lake George, Poland, Alder Creek and Mexico this fall. What percentage of the total Adirondack take showed up at these checking stations will not be known until the license tags, required by law to be sent to the Department's offices in Albany, are tabulated. Hunters reported, however, that an unusually large number of deer was taken out of the woods on weekdays (when the checking stations were not operating), because during much of the season the weather was so warm that the bucks couldn't be left hanging until the usual week-end departure. In any case, indications are that the total Adirondack take was large again this year.

A preliminary tabulation of the bucks brought through the Adirondack stations is given in the accompanying table. The age composition, in percentages, is given for this and last year, and also for the average of the four preceding years, 1945 through 1948.

As indicated by this table, the percentage of one and one-half year old deer taken this past fall was the highest ever encountered in six years of checking. This was anticipated. As a result of two consecutive mild winters there was virtually no winter kill in the Adirondacks; deer were able to range farther from their wintering areas in search of food and were therefore better fed; when better fed, deer are healthier and grow better antlers; and when this happens in the Adirondacks, more one and one-half year old deer have legal antlers. In contrast to the figures for 1950, those for the years 1945 through 1948 clearly show the effect of average or severe winters upon the age composition of the legal buck take.

The very important information gained at our checking stations could not be obtained, of course, without the co-operation of our sportsmen. This fall in particular, that co-operation was wonderful. Many hunters, even though they had no buck to check, stopped in anyway—to pick up information from us, and to pass on their own observations about conditions in the field. We learned a lot from them, and we hope they learned something from us.

—C. W. SEVERINGHAUS

	AGES IN YEARS									
SEASON	1½	2½	3½	4½	5½	6½	7½	8-9½	10½ and older	TOTAL DEER
1950...	41.8	31.1	14.4	5.0	2.7	1.9	1.7	1.0	0.4	806
1949...	32.9	28.2	20.7	7.1	3.9	2.9	2.1	1.7	0.5	809
1945-48.	20.3	34.3	22.4	10.1	5.8	3.0	1.7	1.9	0.5	2,070

SALMON

Landlocked salmon are fall spawners, breeding in late October and early November. They prefer to deposit their eggs in the gravel of large streams, the female fish digging out a deep pit by powerful blows of her tail and later covering the spawn, where it remains all winter. The young fry emerge in late spring.

During recent years observations indicate that the number of salmon which are spawning in this State has increased. This is encouraging, but so few waters have a supply of spawning salmon that natural reproduction cannot be expected to build up the amount of salmon fishing that most of our anglers would like to see. Yet when we try to augment the natural supply by artificial propagation and stocking we get back again to the question of a supply of fish to yield the necessary eggs. We just haven't got them, so the present plan of operation is a compromise: some wild salmon are allowed to spawn naturally, others are netted and spawn is taken from them for propagation. In addition, an experimental lot of hatchery breeders has been reared for their spawn at the Department's Crown Point Hatchery.

Many people assume that fish eggs are so small that a few female fish will supply vast numbers. Some types of fish do in fact have such small eggs that they count up fast, but salmon are at the other extreme, and their large eggs average only about 4,800 per quart. A large number of female fish must be stripped, therefore, to yield the millions of eggs necessary for large-scale propagation. Until more such numbers of breeder salmon are available the egg supply can be expected to be a limiting factor in the number of salmon that can be reared and planted. Hence, a period of experimental stocking to develop effective methods on which to expand (when the supply permits expansion) is a necessary step in our salmon project.

Bearing in mind the drastic shortage of egg supply at the start of this project in 1945, the picture which this year's spawning season brought into focus is generally an encouraging one: about 42,000 eggs from wild spawners and about 17,000 eggs from hatchery breeders are now on the hatching trays.

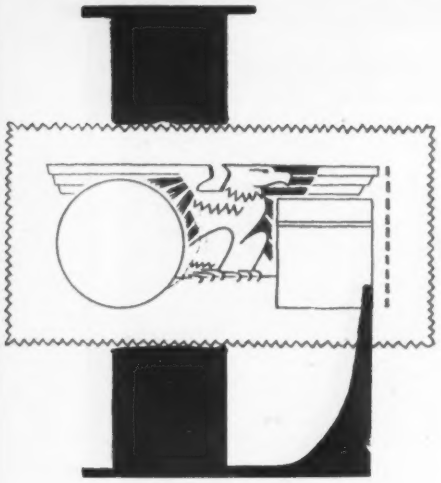
In view of the success in rearing salmon for egg production at Crown Point, it is to be hoped that an increasing number of breeders can be carried. But since it requires four years before any eggs are secured, this operation will require time.

In the trapping operations, more salmon were netted this fall from Schroon River than in any previous year, and more eggs were taken than in 1949. A rather large number of the fish were males in the younger age classes, an indication that the run of females may improve when they are a year older. Clear Pond produced more spawners than in 1949.

In addition to eggs, the spawning salmon yield another valuable product: information. It is at the breeding season that an approximate inventory of salmon on hand in a body of water can be most effectively taken—not an exact count, to be sure, but at least a comparative index of abundance. No less important is the check of age composition of the population. To make such a check it is necessary to determine age from winter marks on scale samples removed from each fish. This investigation has not been completed but it is already evident that a large number of age groups were represented.

It is of interest that planted salmon from the 1945 yearling stocking continued to appear in Schroon River in 1950. Two females and a male, marked by distinctive fin-clipping, were of this origin. These fish, now concluding seven growing seasons, were very large, two of them being 27 inches in length. The results of this particular planting experiment indicated that male salmon came into the breeding group at the end of three growing seasons, females at the end of four seasons, and that both sexes were represented in fourth to seventh seasons. From these results it can be predicted that the sizeable crop of small salmon on the spawning grounds in 1950 will continue to come into a number or subsequent spawning runs.

—JOHN R. GREELEY



Letters to the editor

SCREAMS, NIGHT AND DAY

Dear Editor: Late one May night after a fruitful day's trout fishing, we were seated before a dying fire in Gus Lobrano's cabin on the southerly shore of Cranberry Lake when a screaming wail like that of a banshee or a damned soul in Hell struck our ears. We hesitantly went out on the porch to locate the direction of the scream. It came from out on the lake and of all the animals in your long list culled from the 141 answers you received, it is almost unbelievable that the one we heard was not among them, for it was a loon.

But it was not the loon's usual, moderate, maniacal laughter—but a super, nerve-jangling cacaphony that made you want to creep into bed and pull the covers up over your head.

Martin F. Huberth, Jr., Chappaqua

Dear Editor: One morning very early, as the sun was rising, in November of '47 while walking near a small pond in the Adirondacks I heard a very strange squeak. It seemed to me like the sound of wild geese. As I crept close to the water's edge I saw an otter on a large rock not over 50 feet away. He would dive in the water and come up on the rock—as if playing—and all the time making a squeaking sound.

Lyman Stanton, Barnerville

Dear Editor: Some years ago I experienced a "scream in the day." I was painting a water color of a brook up in Greene County. I'd been quietly working; any invasion of the woods had been forgotten. Birds began to reappear, chipmunks and squirrels had come out of hiding and I was enjoying the communion with Nature when suddenly the peace was shattered by a shrill wavering scream. Seeming to come from across the brook, I crossed over to investigate.

Again I heard it but I was puzzled how anything could make so much noise and yet not been seen. So I kept searching, and again I heard it. This time it was almost at my feet. There, in the grass, I saw a snake with a large green frog protruding out of its mouth. The frog was almost half down the snake's gullet and was screaming for all he was worth.

Stephen J. Voorhies, New York City

Dear Sir: I was camping on Cranberry Lake with an exchange student from England when a scream pierced our sleep. "Blimee," he said. "What wuz that?" I told him it was an owl. "I know it was an owl," he said. "But what the 'ell wuz 'owling?"

John H. McLean, Syracuse

Dear Editor: I read with interest the query of Miss A. E. Kremer in "Letters to the Editor" under the caption "Scream in the Night," also the article under the same title.

My interest (or surprise) centered on why everyone seemed to be at a loss as to what creature made these harsh, shrill screams in the night. May I be permitted to hazard a guess and say, they were the eerie night cries of the corn crake.

Tom Shepherd, Rensselaer

TROUT NOTE

Dear Editor: While we all know that the Conservation Department is doing a swell job of stocking trout waters, I want to tell you of the following experience to show you that Nature is giving you quite an assist.

A couple of years ago I fished a short stretch of a famous trout stream where you had—in the previous six months or so—stocked 1,000 adult trout, all tagged. On this same stretch with a dry fly I hooked and brought to net 13 beautiful wild trout, not one of which had a tag attached. What became of your tagged fish and where did these fish come from?

Dupuy Greer, New York City

• *A high percentage of the trout taken are either wild spawned or wild reared from hatchery fry or fingerlngs. It figures on paper that only one trout in 30 caught originated as yearling or larger stock.—Editor*

CANOE THE AUSABLE?

Dear Editor: I am interested in obtaining all possible information about the AuSable River country which would be useful to someone interested in making a canoe trip on this river to the Chasm, either in the spring or summer. The information required is regarding dams, falls, rapids and length of portages.

Miss Elsa W. Guckernus, Utica

• *On this trip you'd spend more time carrying the canoe than vice versa. Enclosed is our bulletin, "Adirondack Canoe Routes," which may suggest something better.—Editor*

IDEA

Dear Editor: We had a quiz show at our October meeting and to the ten men who answered their hunting and fishing questions correctly, our Club gave them a one year subscription to *The Conservationist*. I would like to suggest the idea to all fish and game clubs. It gives more people (sportsmen) the excellent magazine and gives a lot of fun at your meeting with some of the answers you get.

Ed Morette, Ticonderoga

THAT CABIN

Dear Editor: On page 34 of the August-September issue appears an illustration entitled "Bark Cabin at Calamity Pond." It was used in connection with the excerpts from the Rev. Huntington's diary recounting his experiences on a trip through the Adirondacks in 1853.

On page 122 of a book entitled "Reminiscences of Saratoga," by William L. Stone, written in 1875 and published by R. Worthington, appears an illustration. Same trees, same cabin, same campfire, same guy. This particular picture is entitled "Pete Francis' First Cabin."

Pete Francis was a half-breed Indian of the St. Regis tribe and was one of the principal characters of Saratoga during the first half of the Nineteenth Century.

How about it? Did Pete once live at Calamity Pond? Is the "cabin" really Pete's or is it a picture of one of the State's early experiments in lean-tos that the Conservation Department has indeed improved upon during the last 100 years?

Robert N. McKelvey, Saratoga Springs

• *We just wouldn't know—and so far haven't been able to find out. But anyway, there wasn't any Conservation Department building lean-tos in those days.—Editor*

COLUMBIA COUNTY

Dear Sir: In the article about Columbia County, I was very pleased to see the statements about the need for a Soil Conservation District there. I have felt for a long time that it would be of great benefit to the county. I did, however, note three facts in the article which are not correct and which I would like to call to your attention, as other readers of your magazine are no doubt also doing.

You say ". . . Rudd Pond (200 acres) part of the Taconic State Park system, down in the southeastern corner of the county . . .". Rudd Pond is entirely in Dutchess County.

You mention a fire tower on Mount Washburn near Copake Falls. The fire tower is on Mount Washington.

You say that Columbia County is bordered by Connecticut on the east. Actually, Columbia County, Dutchess County, Massachusetts and Connecticut meet at one point, so that the part of Columbia County bordering on Conn. is, to say the least, very small.

Robert S. Jonas, Warsaw

• *On Rudd Pond, we concede. On Mt. Washburn (not Washington), we insist. On Connecticut, we won't split hairs. Thanks for reading the article so carefully.—R. B. Miller*

QUIZ

Dear Editor: In the November issue of "Outdoor Life" magazine, page 37 is a score card for determining, "How Good is Your State Fish and Game Department?" I did not think I was quite this dumb, but maybe a lot more of the fellows are in my boots.

I cannot honestly answer the following questions: (1) Is the administrative head of your State fish and game department appointed on merit? (2) Are its employees selected on merit and protected by civil service laws? (3) Does it employ an adequate number of trained fish and wildlife technicians? (4) Are the fishing and hunting license fees paid by your sportsmen used solely to produce and protect game and fish, without diversion to any other use?

R. L. Melius, Saugerties

• *Questions 1 through 4, answer yes.—Editor*

FUR-BEARERS, AND SEED

Dear Editor: (1). The law states that a fur-bearing animal shall not be sold with hide attached to the carcass. Why is that law in existence? (2). I received a price list from a nursery in Pennsylvania which listed Scotch pine from Riga seed and also Scotch pine from Danish seed. I have some of the Riga Scotch pine that are 15 or 18 feet tall, and they are nice. Could you tell me something of the trees from Danish seed and how they differ from the others?

John J. Ahern, Worcester

• *(1). The law was promulgated by the fur buyers to protect themselves against purchasing hides full of holes. (2). The farther south Scotch pine seed is collected in Europe, the poorer the quality of the tree—except in certain sections of southwestern Germany, particularly in the Black Forest region.—Editor*

WE WISH THAT—

Gentlemen: At a Conservation Workshop at Cornell this summer, I was informed that all schools received copies of *The New York State Conservationist*. Having searched grimly, I find no such magazine at our school.

Would you please send to me, at Worcester Central School, Worcester, a subscription for above? I'd see it was available for the staff—not filed away.

Hilda Larson, Schenevus

• *We profundly regret that we're not in a financial position to send our magazine to all our schools, free. Most schools either subscribe through their librarian, or are given subscriptions by their local sportsmen's club.—Editor*

WOUNDED DEER

Dear Editor: The piece on wounded deer is one of the nicest pieces of original investigation that you have published. But it seems to me that it didn't give enough credit to whoever did the difficult job, involving a high degree of woodsmanship.

Sparse Grey Hackle, New York City

• *Please see page 32.—Editor*

WANT TO SELL

Dear Sir: Being a pre-publication subscriber I have the first two volumes of *The Conservationist* for disposal, and perhaps some of your readers might be happy to learn of such. The magazine is better each year and if you keep up the good work, I am sure that subscribers will keep up their subscriptions.

Walter M. Swan, Stony Creek

LOST BROOK

Dear Editor: Perhaps the enclosed photograph may be of interest, at least to the Conservation Department, as the brook shown is evidently entirely on State land in the Adirondacks. Am simply sending the photo as proof that the stream ("Lost Brook," as I've named it) actually exists, maps to the contrary even though when this photo was taken (one of several) the water level was 18" below high water mark yet in no case dried up as was the case with other streams that are on the map.

Last summer, hiking south from Nippletop Mt. through the trackless State land, I first came upon this stream close to the site of this photo—and where none is indicated upon my maps.

A. Walton, Jamaica

• *There are a number of inaccuracies in the old U. S. G. S. sheets, most of them in areas of high elevation, and it is not uncommon to find an entire ridge (or stream) omitted.—Editor*

WANTED

Dear Sir: I am very interested in securing the October-November 1946 issue of *The Conservationist*.

Bernard Milloy, 237 Scottwood Ave., Elmira

Dear Editor: I would like to purchase the first issue of *The Conservationist* (Vol. 1 #1). If any readers have this issue and want to sell it, will they please write me and let me know the condition of the issue and the price they are asking for it.

Edward C. Swan, 150 Deerfield Dr., Rochester

QUILL PIG LIVER

Dear Mr. Seagears: Was very interested in your article in recent *Conservationist* on porcupine as a food. I am a little inclined to disagree with you, however, as to the delectability of the beast, as you do not mention the fact that the liver and kidneys are almost beyond question the most delicious of any animal.

I am fond of calf's liver and have eaten beef liver, pig's liver, venison liver, and livers from almost every known edible bird, and can assure you that none of them could touch the porcupine's liver. Probably due to its physical sluggishness and/or dietary habits, it has proportionately a very large liver and there is really some first class eating in that department. Likewise, the kidneys are outstanding in flavor and tenderness. Also, if you will divide the body meat into sections after hanging it about as you would a piece of beef or perhaps a little less, brown them lightly in a pan in which you have also very lightly browned some cut-up onions, add about a cup of hot water in which you've melted a bouillon cube, simmer this until tender and then shortly before serving add a little red wine—you've really got something.

J. Morton Curran, Jr., New York City

RAQUETTE

Dear Editor: We enjoyed your story on Raquette Lake, including the lovely photograph, a great deal. We would like to add that Raquette Lake is the perfect place for anyone who wishes to canoe without portages. Last summer we spent the most glorious (and inexpensive) two weeks vacation doing just that. We camped out in the different lean-tos (thought North Bay the nicest) and each day took our canoe up a different inlet of the lake and there explored old trails and woodroads shown on the topographical map. We discovered lonely little ponds on one trip, old railroad tracks and road signs on another. At the end of two weeks we felt like volunteering our services to the U. S. Geological Survey, in case they were interested in bringing their badly outdated map up to date.

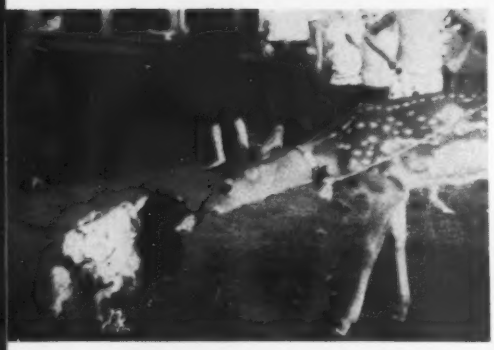
Mary and David Sive, New York City

DEER TRACKS

Editor: Some time ago I wrote an article on deer hunting. After this article was printed I was told that it was possible to tell the sex of a deer by its foot prints. I have argued about this time and again. Can you settle this for me one way or the other?

Thomas C. Reitz, Dover, Delaware

• *So you want us to climb out on that limb? So we will. We defy anybody to tell the track of a young buck from that of a doe. But our personal conviction is that the track of an old buck, during the hunting (and rutting) season, is indicated first and foremost by a sense of direction and purpose (he knows where he's going and doesn't waste time in getting there), by a longer stride, by toeing out, by dragging his feet (evidence visible only on snow), by wider and blunter tracks. We expect opposition. —Editor*



TASTY EARS

Dear Sirs: We enclose two snapshots of your fawn and our cocker spaniel "Dottie", taken in August when the Conservation Department's Wild Life Exhibition was at Sacandaga Lake.

They were a very friendly pair until about a second after the last picture was taken, when Dottie jumped up and seemed to say to the fawn, "Say, them ears ain't hay!" No doubt the aroma of Dottie's dinner was still in her ears.

Margaret McClintock and Irene White, Utica

ADIRONDACK DIARY

Dear Editor: Have been much interested in Adirondack Diary 1853, as I had not read this particular trip in my father's voluminous diary. The editorial comments connecting the present with the past will make it possible for me to go over the same ground (I hope) at some future date.

I have never yet found something that my father told me about once. That is that he was the first one to suggest an Adirondack Park, and was decorated at a sportsmen's meeting in Bagg's Hotel, Utica, because he did so. In visiting Utica a few years ago I tried to see the archives of this hotel in a little museum some wealthy woman erected to preserve them. I hoped to see when he registered there and whether any reference to the event might be found. But the museum was closed and the hotel burned down years ago.

Though being on a retired list myself I am not subscribing to magazines, but feel that I cannot afford to be without *The Conservationist*, so please find my dollar enclosed.

David C. Huntington, Waterford

Dear Sirs: I was very much interested in the article relating to the trip taken by Rev. Huntington through the Adirondacks, in the August-September issue. Could you tell me if the Old Military Road mentioned on page 24 followed an old Indian trail through to St. Lawrence County, passing through DeGrasse. I have followed it many miles in that section and I also would like to know if it was built before 1812 (war year), as my grandfather's people came through that way from Massachusetts before that time.

W. R. Todd, DePeyster

• *The Old Military Road ran from Chestertown to Russell, via Pottersville, Minerva, Newcomb, then around the west side of Catlin Lake to just beyond the outlet of Long Lake, where it crossed the Raquette River; then to Anthony Ponds, Bog River Inlet, Tupper Lake, and northwesterly along the west side of Grasse River. This road was authorized by the Legislature in 1811. Very possibly it followed old Indian trails, and is understood to be the route followed by Sir John Johnson when he fled from Johnstown at the outbreak of the Revolution; he had Indian guides, and his party probably followed Indian trails. Actually this road was not a military road, and should not be confused with the Albany-to-Russell road that lies farther west.—Editor*

Dear Editor: Just a line to let you know how much I enjoyed the Adirondack Diary article in your last issue. Having been born and brought up in Port Henry on Lake Champlain, I know the Tahawus country very well, having fished and hunted there for many years as a guest of the late George C. Foote of Port Henry, who was an early official of the McIntyre Company and who had a camp on Lake Sanford.

I also recall with pleasure a number of hunting trips in the East River section with Clint West and your Bill Mulholland. My only regret is that the State did not acquire all of that wonderful section of country.

How about making your *Conservationist* a monthly instead of once in two? It is much too good a publication to be so limited.

Commander John Owen, U. S. Navy, Puerto Rico

• *We like it all, except that last suggestion.—Editor*

DIRECTION

Dear Sirs: Could you tell me if the road built by U. S. Engineers at McKeever along the Moose River (So. branch) is open for public use?

Also, is it possible to purchase any large scale map of the two Parks that show State-owned land open to public hunting?

G. W. Schoonmaker, Rock Tavern

• *This road was open only for use by the Engineers, and is now closed. Maps of the Adirondack and Catskill Parks, showing State land, sell for $3 and $2 respectively, and are available at this office.—Editor*

TRAPPER

Dear Sirs: I recently graduated from high school and take an interest in the outdoors. How could I acquire the right to start a trapline in the Adirondack Preserve?

Frank Camarda, Babylon

• *You already have the right; just get a trapping license and start out.—Editor*

GARBAGE DETAIL

Dear Editor: My brother-in-law has a cottage at the edge of the woods on a hill at Rushford, N. Y. where I spend quite a bit of time walking through the woods in summer and hunting in the winter. Of late, we have been seeing some large animal tracks but haven't seen the animal, which we will try to track down as soon as the snow falls.

We have a 52-gal. oil drum which is very heavy that we use to burn garbage in. Many nights we are awakened by the noise of it being knocked over, but never have been lucky enough to see what it was.

Fred W. Koch, Buffalo

• *Couldn't say for sure, but it's wonderful what a well organized party of 'coons can do. —Editor*

DEPARTMENT JOBS

Dear Editor: Being a high school student and soon to graduate, I would like to follow up a career as a game warden. Our local game warden suggested that I write you for information concerning the requirements and training needed to enter this branch of the Conservation Department.

Robert Freund, Roslyn, L. I.

• *Printed material outlining the requirements for the positions of Game Protector and Forest Ranger is available by writing the Personnel Officer, Conservation Department, Albany. Copies are being forwarded.—Editor*

A LADY, 83

Dear Editor: Your periodical is as invigorating as a breath of cool air. As an old lady of 83, with a great love of the out-of-doors and a lifelong interest in all phases of nature study, I read it with delight and a great uplift of spirit. Your readers owe you a large debt of gratitude for bringing them so much interesting, accurate and valuable information.

Miss Adella Ingham, Salisbury, Vt.

• *We don't usually publish letters like this, our theory being that readers get fed up with a magazine that blows its own horn. But this one we couldn't resist.—Editor*

HANGING SPEAR FALLS

Dear Editor: I enclose a picture of Hanging Spear Falls just for you to look at. This was taken by me August 24, 1950. I had to be there to do it. To be there and get back (no airplane available) I had to walk 13.4 miles by trail markers. It was much farther coming back than going in and the grades much steeper. I am 78 years old.

Leslie W. Newberry, South Windsor, Conn.

AN EAR, BUT WHOSE?

Dear Editor: Enclosed is an ear from a rabbit or hare which I shot recently in the Town of Stark, Herkimer County.

Several of these large rabbits have been taken in this area in recent years. Local hunters claim that they are a species of western jack rabbit and I must admit they are smiliar in both size and shape to rabbits I saw and shot in the West. However, I remember the Department stating there were no Jack rabbits in New Yorl State and that the large rabbits sometimes taken were European hares. Is this a true Jack or a European hare?

W. B. Romeling, Van Hornesville

• *As with the squirrel tail* (see page 31), *we forwarded this hearing aid to Bill Hamilton in Cornell. He says:*

"The ear is from a European Hare. I have compared it with others in our collection, also with the skin of western jack rabbits. The European Hare has a better fur ear; the dark splotch on the inner side of the ear is characteristic of the beast and other minor marks stamp its kind. The black tip of the inner side is common to many of our native western jack rabbits, but this mark usually extends across the tip and is restricted to the very tip.

"You will recall that this big hare got its first real start at Millbrook, near Poughkeepsie, in 1893. Since that time it has spread into western New England. I received a fine specimen from Millerton a couple years ago. They are veritable giants, large ones approaching ten or twelve pounds.

"This is the first record from Herkimer County that I have. The hare is sporadic in appearance, and appears less numerous than twenty years ago but perhaps with a wider distribution.

"It would be nice to learn of its present distribution in the state. Why don't you publicize the beast in the "Conservationist" and ask that heads be sent to you?"

• *Thanks, Professor. But about those heads: we'll handle the publicity, you handle the heads. Why not have them sent direct to you? That's where they'd end up anyway.—Editor*

GUNSMITHS

Dear Editor: In reference to the question made by Wayne D. Langworthy, Sinclairville, and your answer, lower left hand corner, page 39, October-November 1950 *Conservationist:* I believe clarification is necessary.

If Mr. Langworthy engages in gunsmithing as a hobby and just for himself, a license is not needed. But this sort of hobby seldom remains as such, and generally one ends up by repairing friends' guns, etc. for monetary return. Most of us gunsmiths have started in that way.

A new York State gunsmith license is needed to engage in the business of gunsmithing under the provisions of section 1914 of the Penal Law, as amended by Chapter 532, Laws of 1946. This license is normally issued by the County Judge of the respective counties of the State of New York on the 1st of January, and expires the 31st of December each year. A license is mandatory if one repairs pistols or any type of concealed weapon.

Stanley Hohenstein, Niagara Falls

• *Thanks for putting us straight.—Editor*

MISSING LEAN-TO

Gentlemen: Last Sunday, from Benson Center I hiked up the Northville-Lake Placid trail to Rock Lake, 3.20 miles. The signs along the way mention a lean-to there. I didn't find one—except three logs left from one that used to be there.

Please advise me why the signs all mention Rock Lake lean-to, and yet there is none. Shouldn't that be corrected?

George H. Porter, Schenectady

• *It should be, and will be. The lean-to was destroyed on June 18 last year.—Editor*

DAMAGED WATERS

Dear Editor: I was a little disappointed last year when I found the Jessup River torn up by running pulp logs. That was one of my favorite trout streams. Also disappointed at the low level of Indian Lake. If they could find some way to stop such things they would be doing something for Conservation.

It will be many years before the Jessup can be made a good brook trout stream. They may make brown trout go, but they can never take the place of the speckles.

Chas. K. Nowlan, Columbus, Ohio

BLACK LAKE FISH & GAME

Dear Sirs: I have just received my copy of your "Fish and Game News" for September and October, and notice on page four a heading: "Malone Game Club Sets An Example." It goes on to say they have just subscribed to 44 copies of *The Conservationist* for schools in northern Franklin County.

Possibly the Black Lake Fish and Game Association set the example, as last January we subscribed to 25 copies of *The Conservationist* and distributed them to all operating schools and libraries in the territory covered by our Club.

A. Eric Brasie, President,
Black Lake Fish & Game Ass'n

SKIMMER

Dear Editor: There is a bird that frequents the waters near our home that we cannot identify. It is about one and a half feet long with a wing spread of about three feet. It is black with the trailing edges of the wings white, and then a white band on the end of the tail. The beak is orange and black, the end being orange. There is a semi-circular band of white under the chin. As the bird flies it skims the water with its beak. This is all the description I can give you and I would appreciate it very much if you could identify it for me.

Tony Haines, East Moriches

• *Apparently a black skimmer.—Editor*

BONE MARROW

Dear Editor: Are copies of Cheatum's reprint "Bone Marrow as an Index of Malnutrition in Deer" still available? I wore mine out last winter at sportsmen's meetings and would like to get replacements.

We tallied 451 dead whitetails on 20 miles of river last winter in the Coeur d'Alene mountains and found this marrow test very useful. Now that the West has gained Cheatum perhaps he'll do a simliar study for mule deer and elk.

W. Leslie Pengelly, Biologist,
Department of Fish and Game, Idaho

• *We have to charge a nickel for the reprints. We've still got some.—Editor*

SCULLING FOR DUCKS

Dear Editor: Perhaps you are familiar with the art of sculling for ducks: Decoys are set out anywhere from a few yards from shore to five or six hundred yards or more. The hunter sets in near shore and when the ducks land in, or near, the decoys the hunter sculls out after them.

The boat is usually a small, low boat with the front part concealed with grass and flags. It is propelled by a single oar which extends from the back of the boat. One man does the sculling and one the shooting, or one man may operate by himself. This method is used near my home, which is located along the Delaware River.

I have been in Rochester for the last three years and this is the first year I have had a chance to do any duck hunting. When I spoke of sculling for ducks I was informed by many of the local hunters that it was possible that the above method might not be permitted in this district.

Joseph H. Morgan, Rochester

• *It's legal. And effective.—Editor*

PHOTO CREDITS

Second cover, Earl McGuirk, P. W. Fosburgh, N. Y. S. Commerce Dept.; pages 1, 2, 3, 14, 15, 39, Doug Finch; 4, 5, 34, 35, Martin Pfeiffer; 7, 8, R. W. Darrow; 10, E. R. Shumway; 12, 13, Pfeiffer, Finch; 16, 17, Finch, Darrow; 18, 30, 31, Fred Chambers; 19, Morristown Daily Record; 20, 21, Fosburgh, Clayt Seagears, Chambers, N. Y. S. Commerce Dept.; 23, 24, McGuirk; 25, Booth Studios, Cortland; 26, 27, Donald J. Spittler; 28, 29, Fred Everett; 32, Robert Christie, Jr.; 33, Nick Drahos; 4th cover, Ellen Edmonson. (Pilot for aerial, Fred McLane.)

Through Attic Wastes with Trapline and Bait

THIS piece is designed to aid the removal of sundry small nuisance animals from attic lair, begonia bed and pea patch. It is a partial answer to many letters asking advice on how to do this job without hurting the animal—in case it might be a good one. The bad ones usually are classified as rats and mice.

This desire of home owners to transplant on occasion certain small creatures permanently elsewhere is both understandable and commendable.

It also is intended here to help those who can't stand the sight of a squashed rat or mouse (and there are many) and who are afraid that the effective use of poison may result in a bad smell in the walls.

Because many housewives do happen to feel finicky about the squash'em trap and poison, plenty of house rats and mice are allowed to go unchecked around the joint on their amazingly destructive and often germ-laden way. This is bad business. The muss, etc., can be avoided by live trapping. But first let us undertake to overcome apathy. The facts—let us face 'em.

A scientist named Fischer actually has figured out that in ten years one single loving pair of common rats could produce 48,319,698,843,030,344,720 offspring! This total is based on the necessary assumption that all the rats lived—and that they all bred, which is an unnecessary assumption.

The job of reaching that figure in ten years would be child's play for mice.

Unless we help Nature maintain her system of balances and counter-checks we'd soon find just how many little possibilities there are scuttling around, quite capable of making displaced persons of us all.

It is against New York State's Conservation Law to use poison to kill furbearers. Not so long ago this legally could be done in California where the folks in Kern County wanted to be rid of coyotes. So they spread poisoned bait all over the place. Now, poison is extremely bad stuff to go spreading around because obviously it is non-selective. Not only did it knock off the coyotes but also, we understand, a large portion of Kern County's healthy population of skunks, foxes, weasels and other meat-eating mammals. This of course was a very fine thing for the mice because many of their natural enemies were rendered defunct.

Anyway, the mice went to town.

Estimates soon placed their field populations at 82,000 per acre and the chain litters were still being posted. One farmer figured at least 3,500 mice were in sight at one time in a feed room where he said undoubtedly as many more were messing around in and behind the bags. Another said hordes of hungry mice swarmed over a sheep, killed it and literally whisked the meat from the bones. The California Department of Agriculture reported that two tons of mice were killed in a granary in one day. Fields soon were denuded. This is easy to understand when the normal annual consumption of vegetation by only 1,000 mice has been computed to be 12 tons.

All this naturally threw Kern County into a tailspin. Mile after mile of trenches were dug and lined with poisoned grain. Later it was estimated that 85,000 mice per mile of trench—nearly two mice per inch—had kicked the bucket.

Let all this be a lesson to those who resignedly let mice and stuff run around being potential.

Well what's going on in your attic? Do you hear the patter of little feet overhead? Do you have a gnawing sensation or two in your pantry. If so, it's time to do what the trade calls *stringing the steel.*

Tending an attic trapline can be an absorbing pastime and, in some attics, vigorous exercise. It has the tingling element of surprise, depending on the diversity of things that play around up there. The list is likely to include rats, two kinds of mice (house and white-footed), three kinds of squirrels (red, gray and flying), chipmunks, bats, raccoons, 'possums, barn owls, starlings, English sparrows and pigeons.

If a loose stove pipe hole is among your attic liabilities you also may have chimney swifts. But you won't find them in winter. If you do, they'll be on the dry side and can be removed in a dust pan.

If you have barn owls, celebrate; trapping for other household wildlife will be a waste of time. The owl will have handled the situation long before the day you first notice that Great Grandpa Bezaliel, gazing sternly through his cobwebbed gilt frame, now wears a white goatee.

You will also have had bats long before you find out—if you have bats. In winter they hibernate, clustered together in tight, dark places and their faint, dreamy squeaking is audible for only a yard or so. Let 'em alone. When oiled up by warm weather they become far better demothers than you are. They won't get in your hair either.

If you have roosting English sparrows, starlings or pigeons—creep up on them at night, shine a flashlight in their eyes and put them in a bag. Consult local firearms ordinances before you shoot. Never use poison. Pray for owls.

You won't know that you have 'possums until you find one curled up asleep in the garbage can outside. To remove, merely lift by the tail. If squeamish, replace the lid and lift by the handle. 'Coons in the attic normally are strictly transient and a sure tipoff that you need a carpenter.

This brings us to the remaining guests—all suckers for the attic live trap except, maybe, some smart old rat who may be going around tracking up the place with bubonic plague.

You'll have fun making these traps, especially if the house has a boy with extra fingers for sawing.

You have available right now one kind already made. See the mixing bowl setup in the sketch. To remove the animal, slide a cardboard under the bowl and lift up the whole works.

YOU can make easily any of the other types illustrated except the largest one. This requires careful measurement and assembly but it is extremely efficient. Baited with apple in the garden it will catch all invading bunnies with ease. After one has been caught it often is unnecessary to use bait.

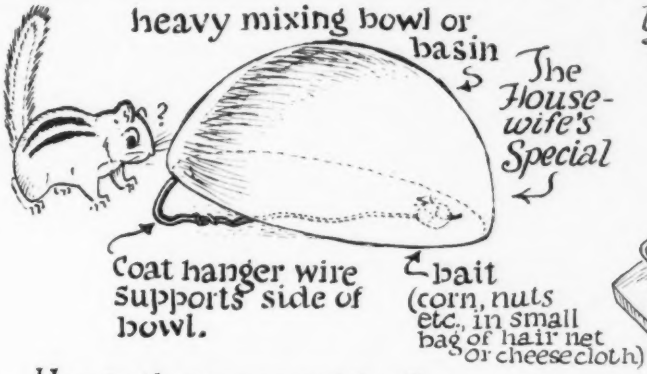
The tin can traps are easy to turn out in quantity and they work. Bait with cheese. A bit of bacon grease dropped in the bottom helps. Peanuts or kernels of corn, cooked or uncooked, can be used for squirrels and may be wrapped in a small cheesecloth bag for easy attaching.

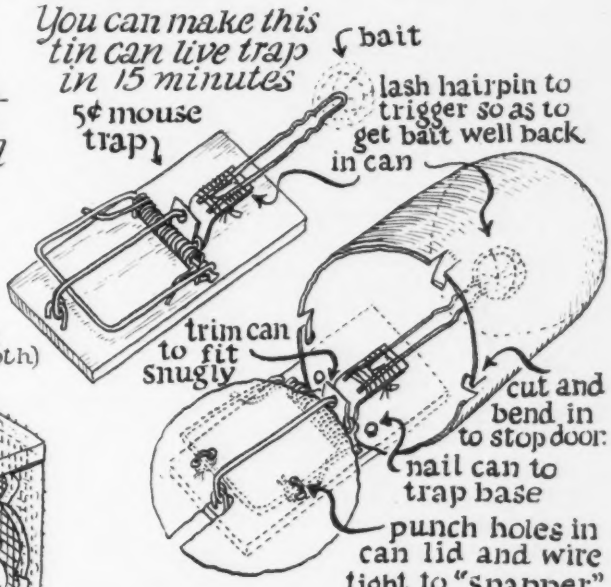
We forgot to explain what to do to determine the identity of victims caught in bowl and can traps. First, tap on the trap. If the answer is unrecognizable, put six inches of water in the bathtub and dump your prize therein. Under the circumstances, it can swim but can't jump. The addition of bath salts may improve the smell here and there around the house in case the animal gets out.

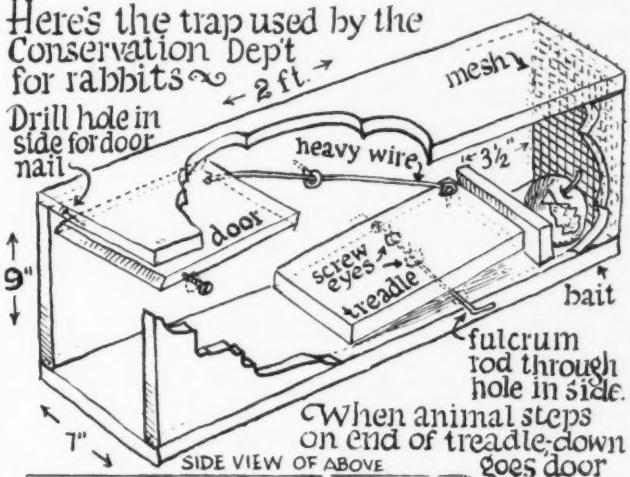
—CLAYT SEAGEARS

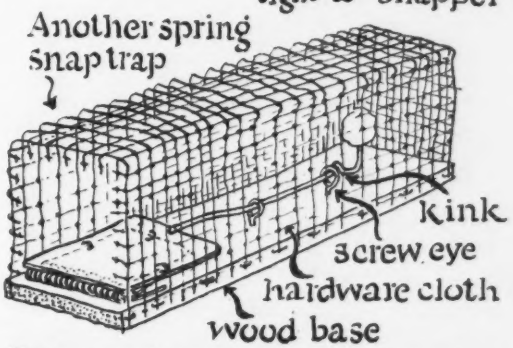
By Clayt Seagears

LIVE TRAPS *YOU* CAN MAKE *for* ATTIC, ALLEY & ASPARAGUS

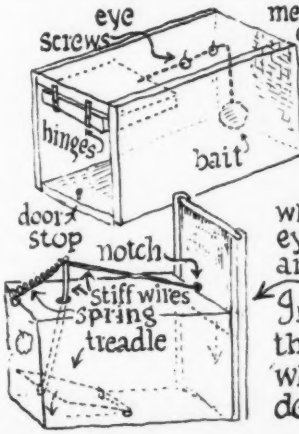

heavy mixing bowl or basin
The Housewife's Special
coat hanger wire supports side of bowl.
bait (corn, nuts etc., in small bag of hair net or cheese cloth)


You can make this tin can live trap in 15 minutes
bait
5¢ mouse trap
lash hairpin to trigger so as to get bait well back in can
trim can to fit snugly
cut and bend in to stop door
nail can to trap base
punch holes in can lid and wire tight to "snapper"





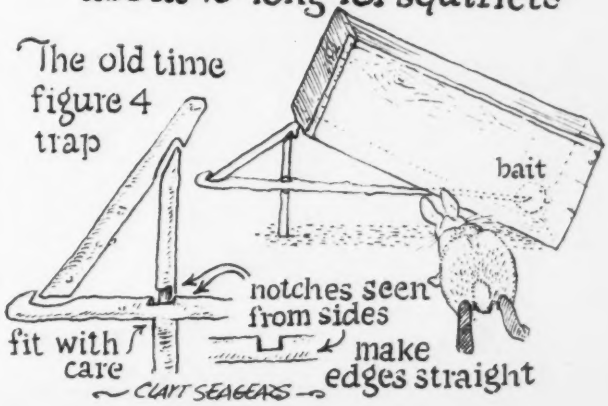
Remount spring snap on new base. Use rat trap size. Make about 18" long for squirrels



This one is easy to make

Edge of door rests on stiff trigger wire which passes through eye screws in top and bends down to bait

In this efficient trap the sliding door drops when the treadle is depressed.



LANDLOCKED SALMON
Salmo salar sebago (Girard)
From immature male 7⅛ inches long
(See page 35)

LANDLOCKED SALMON
Salmo salar sebago (Girard)
Breeding colors from adult male 21⅜ inches long